ORDER NO. AD9104112C8

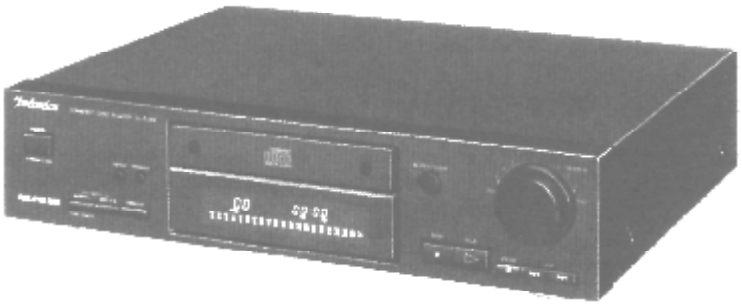
Service Manual

COMPACT disc DIGITAL AUDIO

DIGITAL

Compact Disc Player

SL-PJ38



Color

(K)...Black Type

Area

Country Code	Area	Color
(E)	Continental Europe.	(K)
(GC)	Asia, Latin America, Middle Near East and Africa.	
(GN)	Oceania.	

SL-PG100 MECHANISM SERIES (SODD110Z)

SPECIFICATIONS\ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ
DISASSEMBLY INSTRUCTIONS\МЕТОДИКА РАЗБОРКИ
MEASUREMENTS AND ADJUSTMENTS\ИЗМЕРЕНИЯ И РЕГУЛИРОВКИ
TERMINAL FUNCTION OF IC'S\ФУНКЦИОНАЛЬНОЕ НАЗНАЧЕНИЕ ВЫВОДОВ МИКРОСХЕМ
INTERNAL CONNECTION OF FL\ПРИСОЕДИНЕНИЕ ДИСПЛЕЯ
BLOCK DIAGRAM\БЛОК-СХЕМА
TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES\ЦОКОЛЕВКА МИКРОСХЕМ, ТРАНЗИСТОРОВ И ДИОДОВ
SCHEMATIC DIAGRAMS\ПРИНЦИПИАЛЬНЫЕ СХЕМЫ
WIRING CONNECTION DIAGRAM\СХЕМА СОЕДИНЕНИЯ МОНТАЖНЫХ ПЛАТ
REPLACEMENT PARTS LIST\СПИСОК ЗАПАСНЫХ ЧАСТЕЙ
EXPLODED VIEWS\СБОРОЧНЫЕ ЧЕРТЕЖИ
REPLACEMENT PARTS LIST\СПИСОК ЗАПАСНЫХ ЧАСТЕЙ
RESISTORS AND CAPACITORS\РЕЗИСТОРЫ И КОНДЕНСАТОРЫ
PACKING\УПАКОВОЧНЫЕ МАТЕРИАЛЫ

Technics

SPECIFICATIONS

■ Audio

Optical output

No. of channels 2 (left and right, stereo)

■ Pickup

Wavelength 780 nm

■ General

Power supply

For (E, GN) areas: AC 50/60 Hz, 230–240 V

For (GC) area: AC 50/60 Hz, 110 V/127 V/220 V/240 V

Power consumption 14 W

Dimensions (W×H×D) 360×85×300 mm

Weight 3.0 kg

Note:

Specifications are subject to change without notice.
Weight and dimensions are approximate.

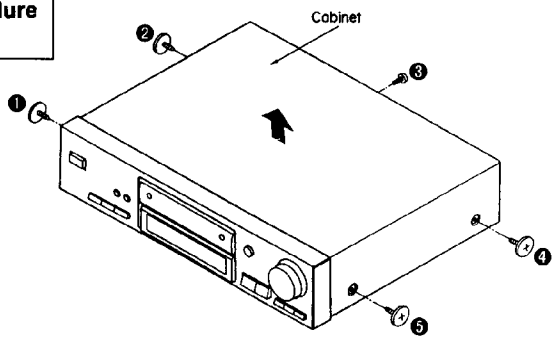
■ DISASSEMBLY INSTRUCTIONS

Warning: This product uses a laser diode. Refer to caution statements on page 3.

ACHTUNG: • Die lasereinheit nicht zerlegen.
• Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

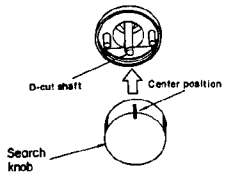
※ This CD player is equipped with FPC boards, so handle them with care during disassembly and reassembly.

Ref. No. 1	Removal of the cabinet
Procedure 1	

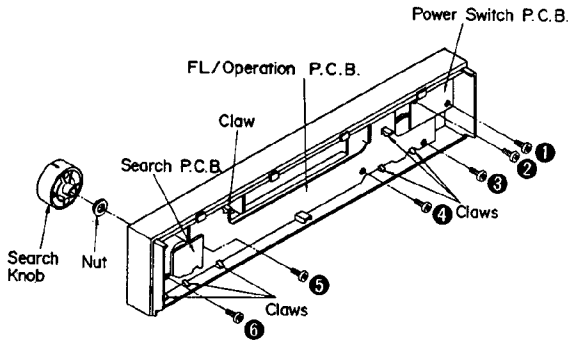


- Remove the 5 screws (❶~❺).

Ref. No. 3	Removal of the search P.C.B., power switch P.C.B. and FL/operation P.C.B.
Procedure 1→2→3	



■ **Installation of the search knob**
- Rotate the D-cut volume shaft to set it as illustrated.
- Fit the search control with the D-cut shaft with the search control's center position upward.

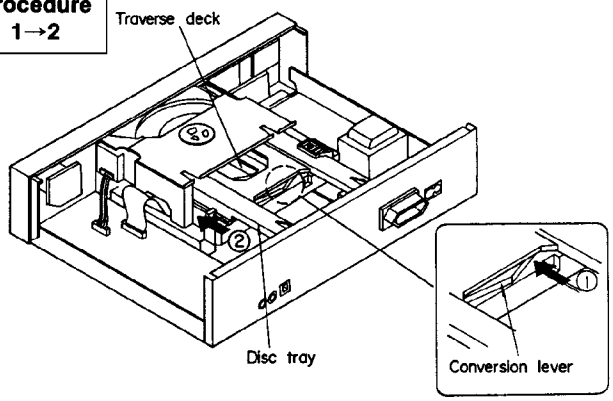


■ **Removal of the search P.C.B.**
1. Pull out the search knob.
2. Remove the nut.

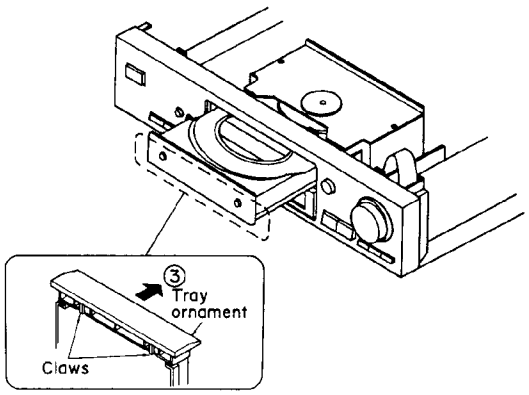
■ **Removal of the power switch P.C.B.**
- Remove the 2 screws (❶, ❷).

■ **Removal of the FL/operation P.C.B.**
1. Remove the 4 screws (❸~❻).
2. Release the 7 claws.

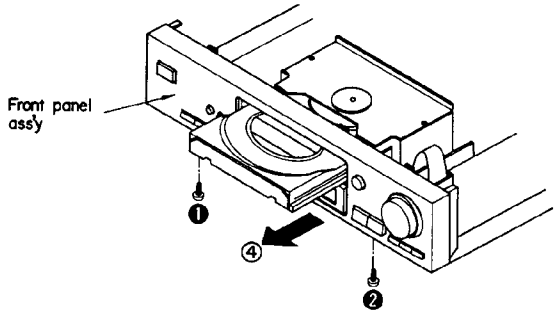
Ref. No. 2	Removal of the front panel ass'y
Procedure 1→2	



1. Push the conversion lever fully in the direction of arrow ① and lower the traverse deck.
2. Move the disc tray in the direction of arrow ②.



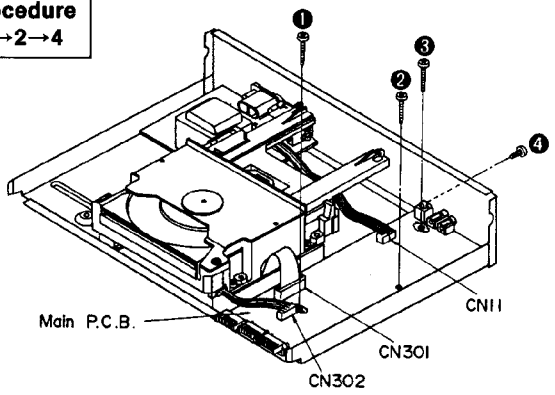
3. Release the 2 claws and then remove the tray ornament in the direction of arrow ③.



4. Remove the 2 screws (❶, ❷).
5. Remove the front panel ass'y in the direction of arrow ④.

Ref. No. 4	Removal of the main P.C.B.

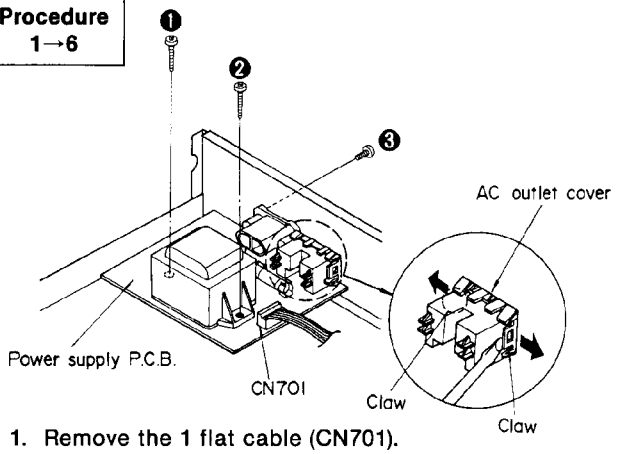
Procedure 1→2→4



1. Remove the 2 flat cables (CN11, CN301).
2. Remove the 1 connector (CN302).
3. Remove the 4 screws (❶~❹).

Ref. No. 5	Removal of the power supply P.C.B.

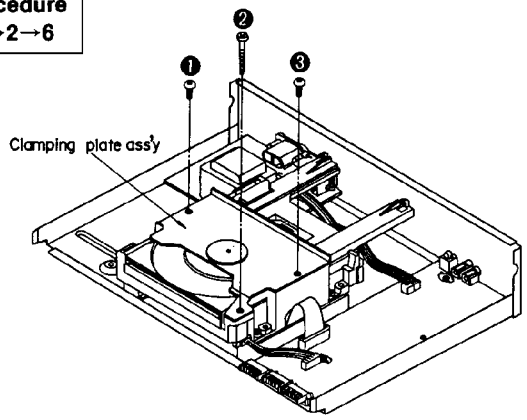
Procedure 1→6



1. Remove the 1 flat cable (CN701).
2. Remove the 3 screws (❶~❸).
3. Release the 2 claws of the AC outlet cover.

Ref. No. 6	Removal of the clamping plate ass'y

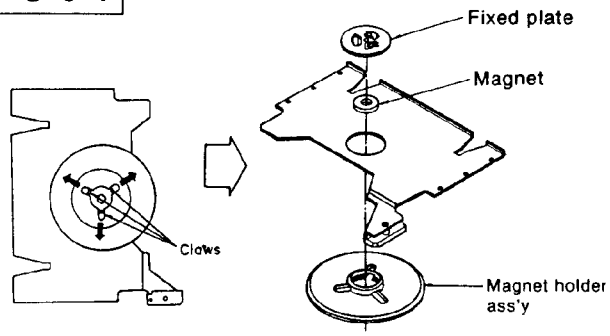
Procedure 1→2→6



• Remove the 3 screws (❶~❸).

Ref. No. 7	Removal of the fixed plate, magnet and magnet holder ass'y

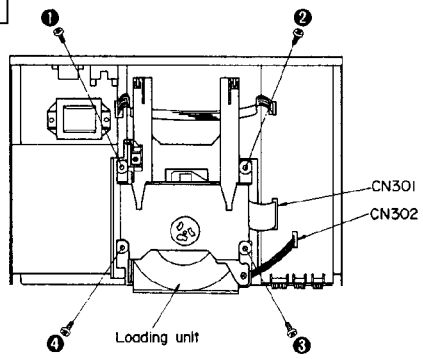
Procedure 1→2→6→7



• Release the 3 claws.

Ref. No. 8	Removal of the loading unit

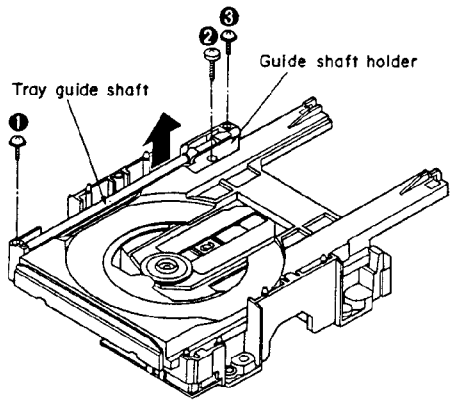
Procedure 1→2→8



1. Remove the 1 flat cable (CN301).
2. Remove the 1 connector (CN302).
3. Remove the 4 screws (❶~❹).

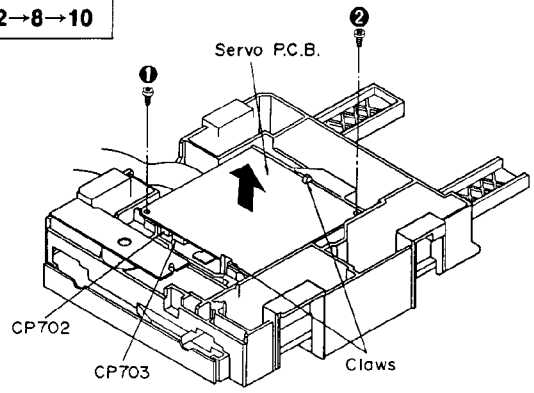
Ref. No. 9	Removal of the tray guide shaft and guide holder

Procedure 1→2→6 →8→9



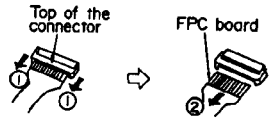
1. Remove the 3 screws (❶~❸).
2. Remove the tray guide shaft and guide holder in the direction of arrow.

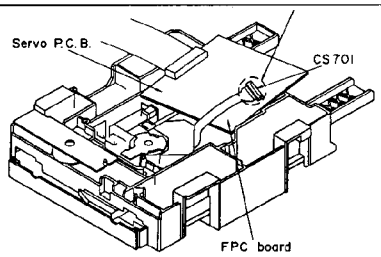
Ref. No. 10	Removal of the servo P.C.B.
Procedure 1→2→8→10	



1. Remove the 2 screws (❶, ❷).
2. Release the 2 claws.
3. Remove the servo P.C.B. in the direction of arrow.
4. Remove the 2 connectors (CP702, CP703).

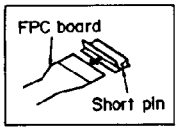
1. Push the top of the connector in the direction of arrow ①.
2. Remove the FPC board in the direction of arrow ②.



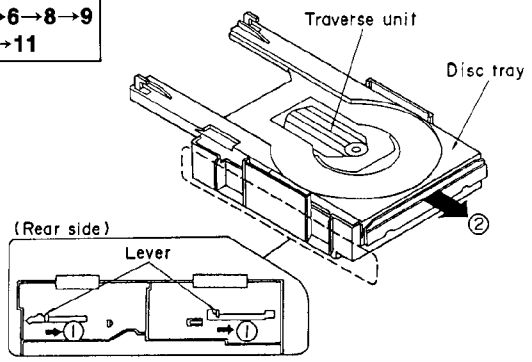


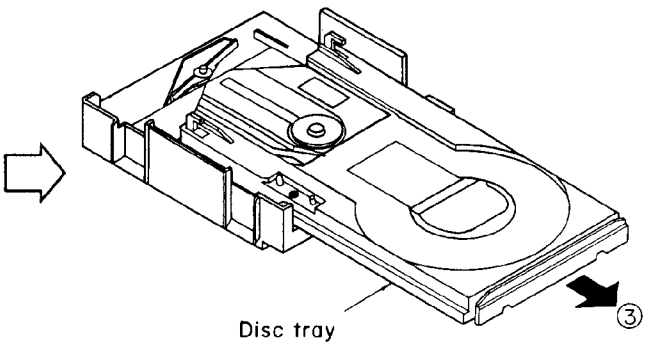
5. Remove the FPC board (CS701).

Caution:
Insert a short pin into the traverse unit FPC board. (Refer to "handling precautions for traverse deck" on page 5.)



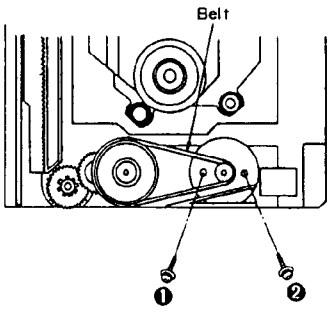
Ref. No. 11	Removal of the disc tray.
Procedure 1→2→6→8→9 →11	

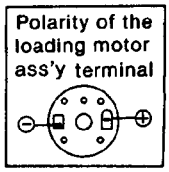


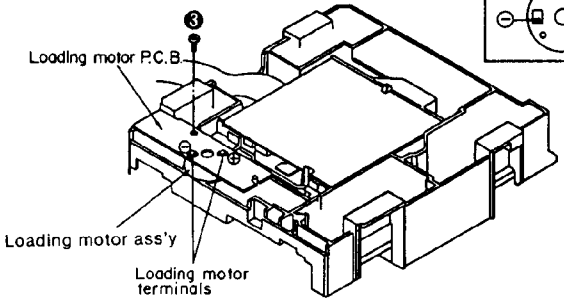


1. Push the levers in the direction of arrows ①. The traverse unit will lower and the disc tray will move slightly in the direction of arrow ②.
2. Pull the disc tray fully in the direction of arrow ③.

Ref. No. 12	Removal of the loading motor and loading motor P.C.B.
Procedure 1→2→6→8→9 →11→12	



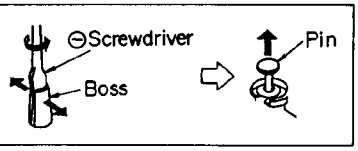


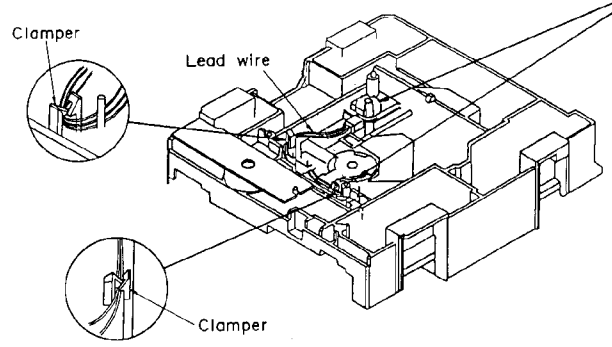


1. Remove the belt.
2. Remove the 2 screws (❶, ❷).
3. Remove the 1 screw (❸).
4. Unsolder the 2 terminals of loading motor.

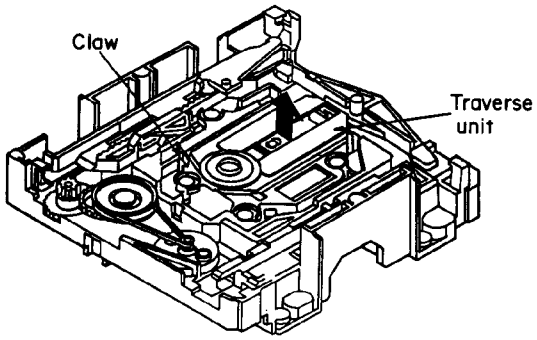
Ref. No. 13	Removal of the traverse unit
Procedure 1→2→6→8→9 →10→11→13	

1. Widen the boss by using a regular screwdriver or similar object.
2. Pull out the pin.



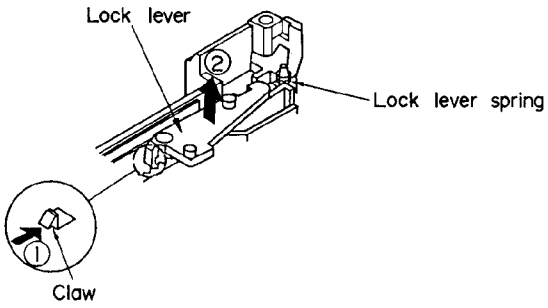


1. Remove the lead wire from clamper.
2. Remove the 2 pins.



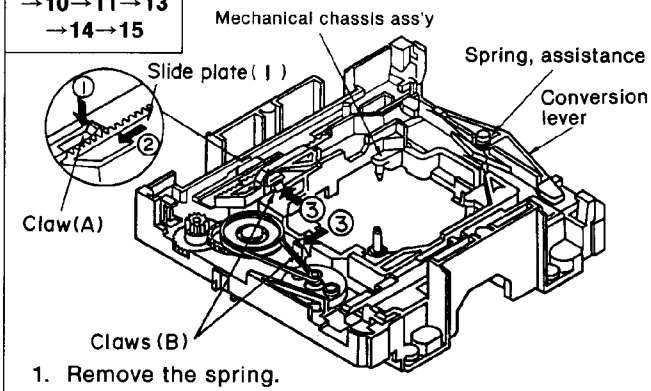
3. Release the claw and then remove the traverse unit in the direction of arrow.

Ref. No. 14	Removal of the lock lever
Procedure 1→2→6→8→9 →11→14	



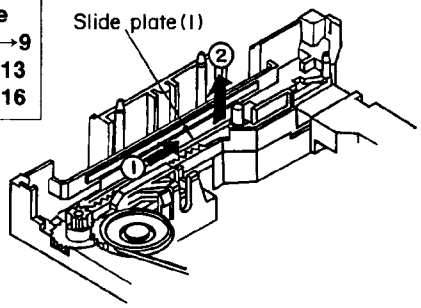
1. Remove the lock lever spring.
2. Release the claw in the direction of arrow ① and then remove the lock lever in the direction of arrow ②.

Ref. No. 15	Removal of the traverse chassis and conversion lever
Procedure 1→2→6→8→9 →10→11→13 →14→15	



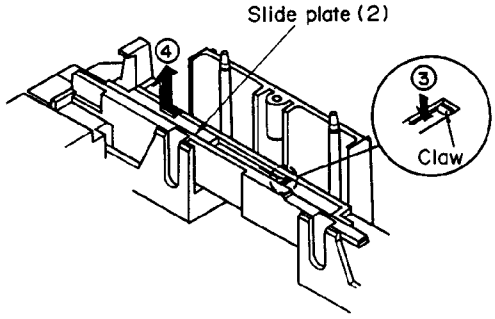
1. Remove the spring.
2. Move the slide plate (1) in the direction of arrow ② while pushing the claw (A) in the direction of arrow ①.
3. Remove the conversion lever.
4. While pushing the claws (B) in the direction of arrow ③, lift the mechanical chassis ass'y.

Ref. No. 16	Removal of the slide plate (1) and slide plate (2)
Procedure 1→2→6→8→9 →10→11→13 →14→15→16	



■ **Removal of the slide plate (1)**

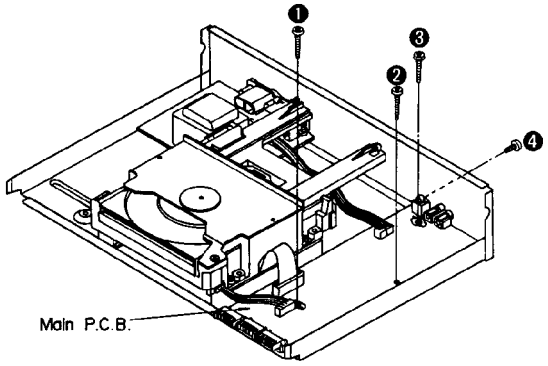
- After moving the slide plate (1) fully in the direction of arrow ①, lift it in the direction of arrow ②.



■ **Removal of the slide plate (2)**

- While pushing the claw in the direction of arrow ③, remove the slide plate (2) in the direction of arrow ④.

Ref. No. 17	How to check the main P.C.B.
Procedure 1→2→17	

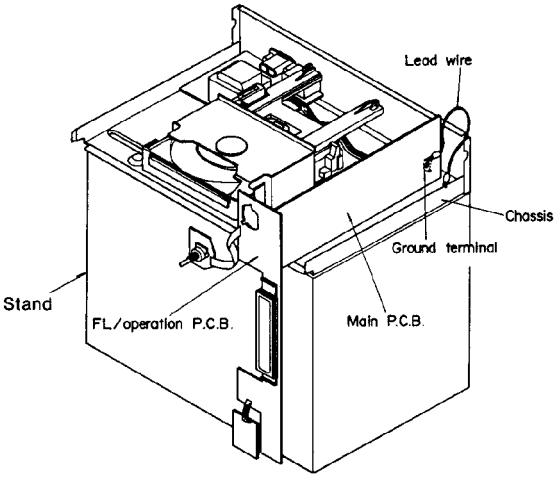


1. Remove the 4 screws (❶~❹).

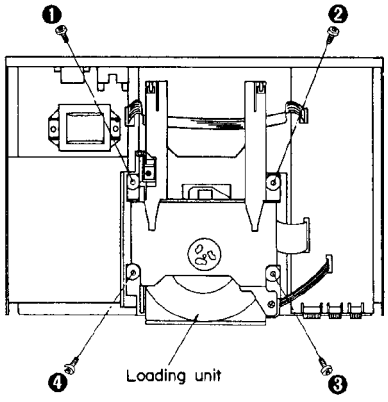
• When checking the soldered surface of the main P.C.B. and replacing the parts, do as shown below.

Cautions:

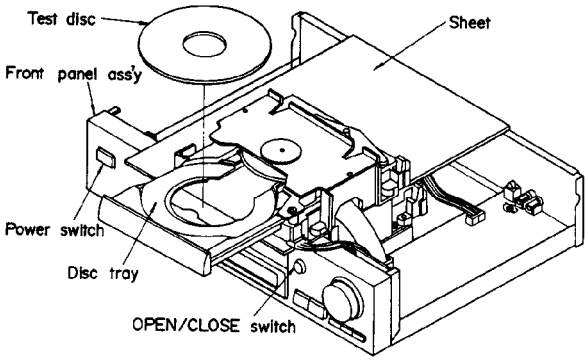
1. Connect the main P.C.B. ground terminal to the chassis with a lead wire.



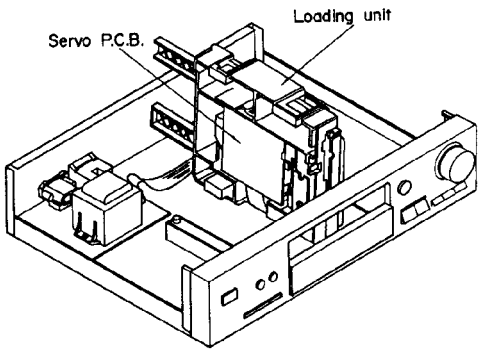
Ref. No. 18	How to check the servo P.C.B.
Procedure 1→2→18	



1. Remove the 4 screws (❶~❹).

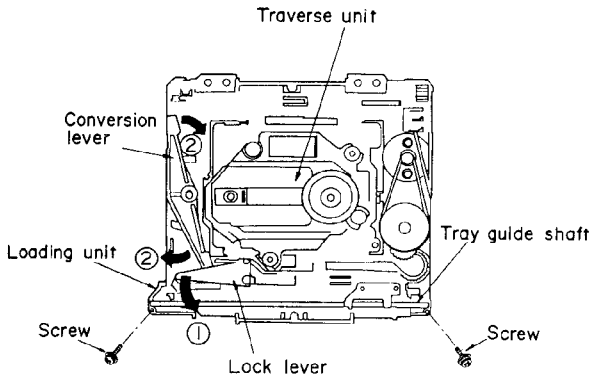


2. Attach the front panel ass'y to the unit.
3. Turn on the power switch and press the OPEN/CLOSE switch to open the disc tray.
4. Load the test disc and press the OPEN/CLOSE switch again to close the disc tray.

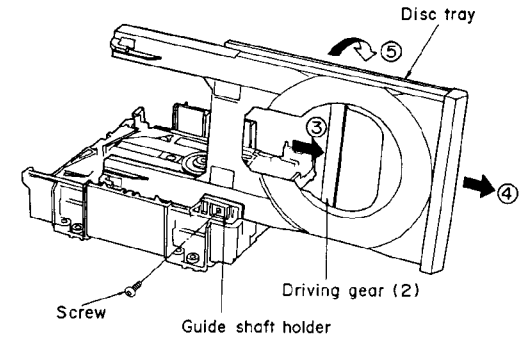


5. Place the loading unit sideways as shown in the figure right.
6. After placing the unit as shown right, perform check and adjustment of the foil on the servo P.C.B.

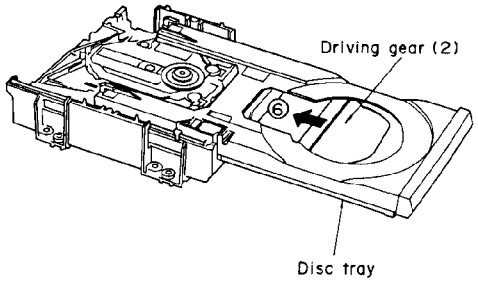
■ Installation of the disc tray



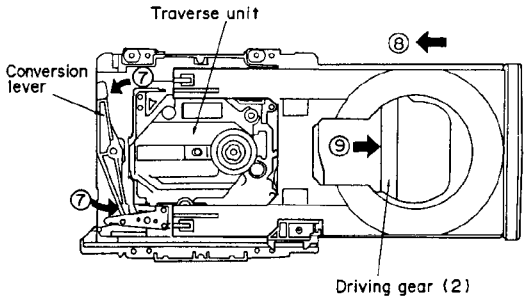
1. Move the lock lever in the direction of arrow ①, and then move the conversion lever in the direction of arrow ②.
   (The traverse unit will move upward.)
2. Use the two screws to mount the tray guide shaft to the loading unit.



3. Use the screw to mount the disc tray to the guide shaft holder.
4. Move the driving gear (2) fully in the direction of arrow ③.
5. Move the disc tray fully in the direction of arrow ④.
6. Tilt the disc tray downward in the direction of arrow ⑤.



7. Move the driving gear (2) fully in the direction of arrow ⑥.
8. While continuing to support the disc tray with your hand, slide the driving gear (2) as far as it will go in the direction of arrow ⑥. (Althought it will only slide a small amount, this will allow the loading gear to mesh together with the gear of the disc tray.)



9. Move the conversion lever in the direction of arrow ⑦.
   (The traverse unit will move downward.)
10. Move the disc tray fully in the direction of arrow ⑧.
    (When doing this, confirm that the driving gear (2) slides in the direction of arrow ⑨.)

■ MEASUREMENTS AND ADJUSTMENTS

Warning: This product uses a laser diode. Refer to caution statements on page 3.

Caution: During adjustment, never connect CH-2 probe's GND to any place for it may short V-Ref. line. (Connect CH-1 probe's GND to specified TP. described in each section.)

Measuring Instruments and Special Tools

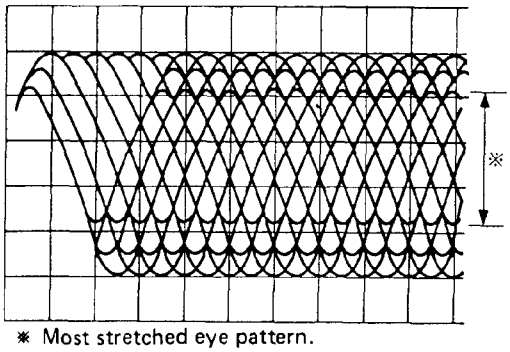
* Test discs
1. Playability test disc (SZZP1054C)
2. Uneven test disc (SZZP1056C)

* Musical program disc (ordinary)
* Extension cable kit (RFKZ0009)
* Dual-beam oscilloscope with bandwidth of 30MHz or better (with EXT. trigger and 1: 1 probe).
* Allen wrench (M2.0) (SZZP1101C)
* Lock paint (RZZOL01)

(1) MECHANICAL ADJUSTMENT

- When the traverse deck is replaced, making adjustments is not necessary. (The traverse deck ass'y is already adjusted.)
- Make adjustments to improve playability if the traverse deck has not been replaced.

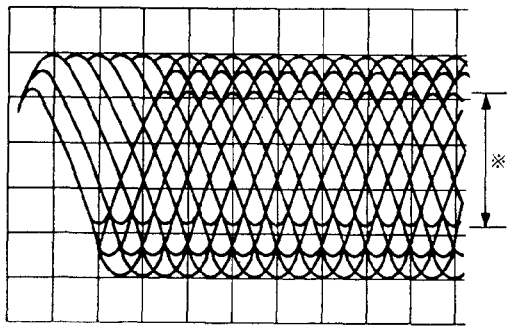
1. Connect the oscilloscope's CH. 1 probe across **TP702** (RF) (+) and **TP703** (V-Ref.) (−) on the servo P.C.B.
   Oscilloscope setting: VOLT.....200mV
   SWEEP .....0.5μs.
   Input coupling.AC
2. Switch the player power **ON**, and play track **19** on the test disc (SZZP1056C).
   (Playing any other track will prevent, the HEX screws from being accessed.)
3. Leave the player in play mode and place the traverse deck as shown under Ref. No. 18 on page 10.
4. Alternately adjust the two mechanical adjusting screws with the 2.0mm allen wrench (SZZP1101C) until the vertical fluctuation of RF signal is minimized and the eye pattern is most stretched.
   (Refer to Fig. 2 on page 13)
5. After completing the adjustment, lock the HEX screws with lock paint (RZZ0L01).



※ Most stretched eye pattern.

(2) BEST EYE (PD BALANCE) ADJUSTMENT

1. Connect the oscilloscope's CH. 1 probe across **TP702** (RF) (+) and **TP703** (V-Ref.) (−) on the servo P.C.B.
   Oscilloscope setting: VOLT.....200mV
   SWEEP .....0.5μs.
   Input coupling.AC
2. Switch the player power **ON**, and play the 1kHz (track 1) on the test disc (SZZP1054C).
3. Adjust **VR701** until the vertical fluctuation of RF signal is minimized and the eye pattern is most stretched. (Refer to Fig. 1 on page 13)



※ Most stretched eye pattern.

(3) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

* **Checking Skip Search**
1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

* **Checking Manual Search**
1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

* **Checking Playability**
1. Play the 0.7mm black dot and the 0.7mm wedge on the test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

• Adjustment points

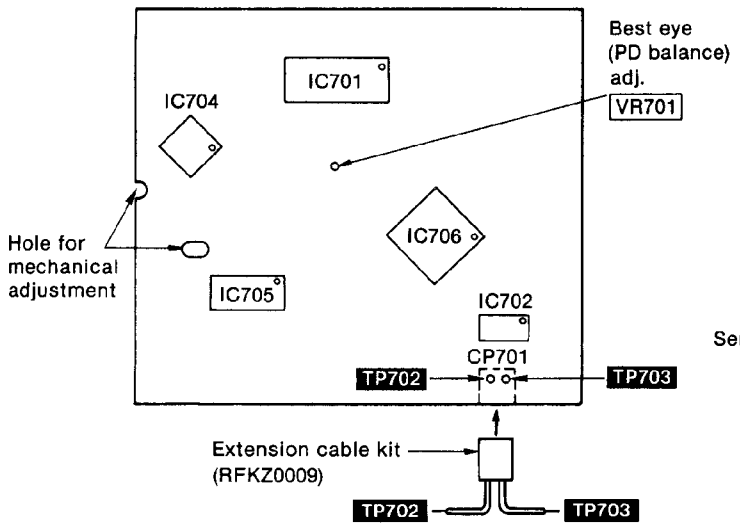


Fig. 1

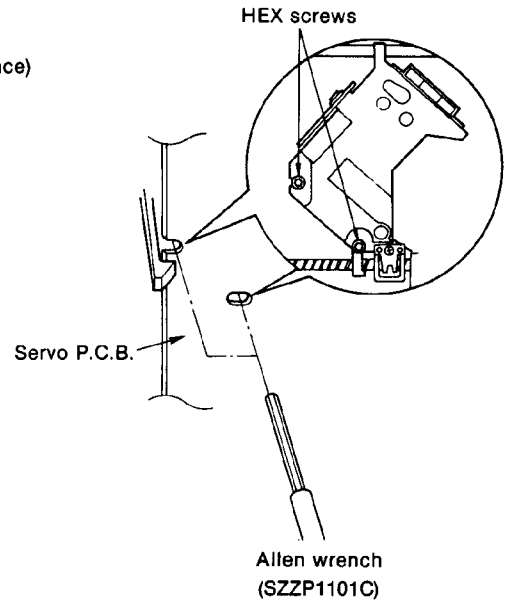
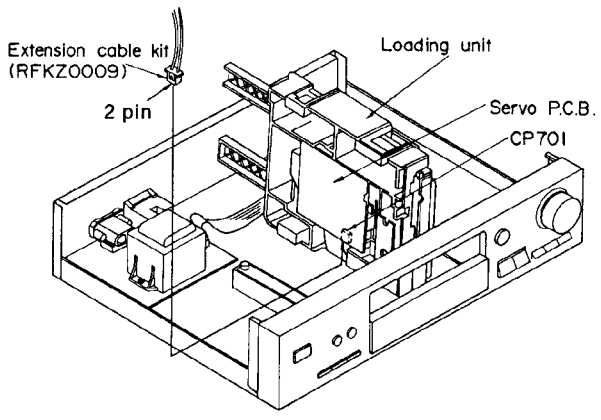


Fig. 2

• How to install the extension cable kit (RFKZ0009)

※ It may be difficult to insert the (2 pin) extension cable while the tray is closed, therefore open the disc tray slightly and insert the (2 pin) extension cable.



■ TERMINAL FUNCTION OF IC'S

• IC401 (MN1554PKL1): System control

Pin No.	Mark	I/O Division	Function
1	MUTE RELAY	O	Muting output (Not used, open)
2	$\overline{\text{PLUNGER}}$	—	(Not used, open)
3	$\overline{\text{SYNC}}$	—	(Not used, open)
4	$\overline{\text{SIRQ}}$	I	(Not used, connected to power supply.)
5	BLKCK	I	Sub-code block clock (f=75Hz)
6	SQCK	O	Sub-code Q register clock
7	SBO	—	(Not used, open)
8	SUB Q	I	Sub-code Q data
9	RESET	I	Reset terminal
10	CLOSE SW	I	Disc holder "close" det.
11	OPEN SW	I	Disc holder "open" det.
12	REST SW	I	Rest det. terminal
13	NC	—	(Not connected)
14	$\overline{\text{CLOSE}}$	O	Loading motor "close" command signal
15	$\overline{\text{OPEN}}$	O	Loading motor "open" command signal
16 ∫ 24	NC	—	(Not connected)
25	V_{DD}	I	Power supply terminal
26 ∫ 30	NC	—	(Not connected)
31	FUTA SW	—	(Not used, connected to power supply)
32	MODE	—	(Not used, connected to GND)
33	STAT	I	Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQOK)

Pin No.	Mark	I/O Division	Function
34	$\overline{\text{TLOCK}}$	I	Optical servo condition (tracking) input
35	$\overline{\text{FLOCK}}$	I	Optical servo condition (focus) input
36	SENSE	I	Sense signal
37	$\overline{\text{RECV}}$	I	Data receipt command signal
38	$\overline{\text{SEND}}$	I	Data transmission command signal
39	ACK	I	Data discrimination signal
40	CLK	I	Data lock signal
41 ∫ 44	DATA 0 ∫ DATA 3	I	Key scan signal
45 ∫ 52	NC	—	(Not connected)
53	OSC 2	I	Clock input terminal (4.2336MHz)
54	OSC 1		
55	X1	—	(Not used, connected to GND)
56	X0	—	(Not used, open)
57	V_{SS} (GND)	—	GND terminal
58	DMUTE	O	Muting output (H: mute)
59	MDATA	O	Command data signal
60	MCLK	O	Command clock signal
61	$\overline{\text{MLD}}$	O	Command load signal (L: load)
62	TX (D. OUT)	—	(Not used, open)
63	EMPH	O	De-emphasis signal (Not used, open)
64	SERVO RST	O	Reset signal for servo circuit

• IC601 (MN187204PKX): System control & FL drive

Pin No.	Mark	I/O Division	Function
1 ⟆ 7	SEG 6 ⟆ SEG 0	O	Segment signal to FL display
8	V_{PP}	I	Power supply for FL drive
9	V_{CC}	I	Power supply terminal
10	OSC 2	I	System clock terminal (f=4.2336 MHz)
11	OSC 1		
12	GND	—	GND terminal
13 • 14	NC	—	(Not connected)
15 ⟆ 18	DATA 3 ⟆ DATA 0	O	Key scan signal
19	CLK	O	Data clock signal
20	ACK	O	Data discrimination signal
21	$\overline{\text{SEND}}$	O	Data transmission command signal
22	$\overline{\text{RECV}}$	O	Data receipt command signal
23 • 24	NC	—	(Not connected)

Pin No.	Mark	I/O Division	Function
25	BSDTO	O	Data signal for system control terminal
26	BSDTI	I	
27	BSCKO	O	Clock signal for system control terminal
28	BSCKI	I	
29	RESET	I	Reset signal terminal
30 ⟆ 35	KEY 5 ⟆ KEY 0	I	Key return signal
36	NC	—	(Not connected)
37	CM	—	Not used, connected to GND
38 ⟆ 41	NC	—	(Not connected)
42 ⟆ 45	CODE 1 ⟆ CODE 4	I	Search dial code signal (Not used, open)
46 ⟆ 55	DGT 0 ⟆ DGT 9	O	Digit signal to FL display
56 ⟆ 64	SEG 15 ⟆ SEG 7	O	Segment signal to FL display

• IC701 (AN8800SCE2): Servo amp

Pin No.	Mark	I/O Division	Function
1	LDG	I	APC loop gain select
2	LDP	I	APC monitor PD polarity select
3	LD	O	Laser power auto control output
4	LPD	I	LD power monitor PD signal
5	GND	—	GND terminal
6	LDON	I	LD APC ON/OFF ("H": ON, "L": OFF)
7	AMP I	I	RF signal (X30 amp)
8	AMP O	O	
9	RF IN	I	RF AGC signal input
10	RF EQ	—	GND terminal
11	C. AGC	I	AGC detection capacitor input
12	ARF	O	RF signal output
13	C. SBDO	I	Dropout detection capacitor input
14	RF DET	O	RF detection signal ("L": detecting)
15	BDO	O	Dropout detection output
16	V_{CC}	I	Power supply terminal
17	SDO	O	Dropout detection pulse output
18	VAD+	O	Power supply terminal for A/D converter (+)
19	VREF	O	Reference voltage output
20	VAD−	O	Power supply terminal for A/D converter (−)
21	OFTR	O	Off track detection ("H": det.)

Pin No.	Mark	I/O Division	Function
22	PLAY	I	Play signal ("H": ON, "L": OFF)
23	WVEL	I	Double velocity ("H": double, "L": single)
24	TES	I	Tracking error shunt ("H": shunt, "L": output)
25	PTO	O	Potentio amp output
26	PTI	I	Potentio amp input
27	PBO	O	Potentio buffer output
28	POT	I	Potentio buffer input
29	CROSS	O	Tracking error zero cross output
30	TE	O	Tracking error signal
31	TE BAL	I	Oscillation det. signal
32	TBAL	I	Tracking balance adj. input
33	VDET	O	Oscillation det. signal ("H": det.)
34	FE	O	Focusing error signal
35	FBL 2	I	Focusing balance 2
36	FBL 1	I	Focusing balance 1
37	V_{CC}	I	Power supply terminal
38	GND	—	GND terminal
39	PDBD	I	Photo detector Bch input with delay
40	PDA	I	Photo detector Ach input without delay
41	PDB	I	Photo detector Ach input with delay
42	PDAD	I	Photo detector Bch input without delay

• IC706 (MN6626): Digital signal processor

Pin No.	Mark	I/O Division	Function
1	AVSS	—	GND terminal
2	IREF	I	Reference current input
3	ARF	I	RF signal input
4	DRF	I	DSL bias terminal (Not used, open)
5	DSLF	I/O	DSL loop filter terminal
6	PLLF	I/O	PLL loop filter terminal
7	AVDD	I	Power supply terminal
8	RSEL	I	RF signal polarity setting terminal (Not used, connected to VDD)
9 ∫ 16	TBUS7 ∫ TBUS0	O	Test terminal
17	FLAG	O	Flag terminal
18	IPFLAG	O	Interpolation flag terminal
19	FCLK	O	Crystal frame clock (Not used, open)
20	BYTCK	O	Byte clock (Not used, open)
21	WDCK	O	Word clock (Not used, open)
22	$\overline{RST}$	I	Reset terminal
23	TX	O	Digital audio signal
24	LDG	O	Lch deglitch signal (Not used, open)
25	RDG	O	Rch deglitch signal (Not used, open)
26	SRDATA	O	Serial data output (MSB first)
27	SCK	O	Serial bit clock output
28	LRCK	O	L/R discriminating signal
29	XCK	O	Crystal OSC terminal (f=16.9344MHz)
30	PMCK	O	Frequency division clock signal (Not used, open) ($f=\frac{1}{192}\times CK=88.2kHz$)
31	CSEL	I	Test terminal (Connected to GND)
32	PSEL		
33	X1	I	Crystal OSC terminal (f=16.9344MHz)
34	X2	O	
35	VSS	—	GND terminal
36	SUBQ	O	Sub-code Q data
37	SQCK	I	Sub-code Q register clock
38	$\overline{CLDCK}$	O	Sub-code frame clock (f=7.35kHz) (Not used, open)

Pin No.	Mark	I/O Division	Function
39	BLKCK	O	Sub-code block clock (f=75Hz)
40	DEMPH	O	De-emphasis ON signal ("H": ON)
41	MEMP	I	Emphasis signal
42	MLD	I	Command load signal ("L": LOAD)
43	MCLK	I	Command clock signal
44	MDATA	I	Command data signal
45	D MUTE	I	Muting input ("H": MUTE)
46	SMCK	O	System clock (f=4.2336MHz)
47	STAT	O	Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQOK)
48	CRC	O	Sub-code CRC check terminal ("H": OK, "L": NG)
49	SUBC	O	Sub-code serial output data (Not used, open)
50	SBCK	I	Sub-code serial output clock (Not used, open)
51	$\overline{TRON}$	I	Tracking servo ON signal ("L": ON)
52	CLVS	O	Turntable servo phase synchro signal ("H": CLV, "L": Rough servo)
53	PC	O	Turntable motor ON signal ("L": ON)
54	ECM	O	Turntable motor drive signal (Forced mode)
55	ECS	O	Turntable motor drive signal (Servo error signal)
56	VDD	I	Power supply terminal
57	$\overline{TEST}$	I	Test terminal (Normal: "H")
58	SSEL	I	"SUBQ" terminal mode select ("H": Q code buffer)
59	MSEL	I	"SMCK" terminal frequency select ("L": SMCK=4.2336MHz)
60	RESY	O	Re-synchronizing signal of frame sync. (Not used, open)
61	DO	I	Drop-out detection signal ("H": Drop-out) (Not used, connected to GND)
62	EFM	O	EFM signal (Not used, open)
63	PCK	O	PLL extract clock (f=4.3218MHz)
64	PDO	O	Phase comparated signal of EFM and PCK (Not used, open)

• IC704 (MN6650): Digital servo processor

Pin No.	Mark	I/O Division	Function
1	TES	O	Tracking error shunt signal ("H": shunt)
2	PLAY	O	Play signal ("H": play)
3	/RFDET	I	RF det. signal ("L": det.)
4	DO	I	Dropout signal ("H": dropout)
5	OFT	I	Off track signal ("H": off track)
6	ARF	I	RF signal input
7	WVEL	O	Double velocity status signal ("H": double)
8	PBO	I	Potensio buffer signal (analog input)
9	TE	I	Tracking error signal (analog input)
10	FE	I	Focus error signal (analog input)
11	VR2	I	Reference voltage for A/D (Low)
12	VR1	I	Reference voltage for A/D (High)
13	LDON	O	Laser power control ("H": ON)
14	V_{SS}	—	GND terminal
15	AV_{SS}	—	GND terminal
16	AV_{DD}	I	Power supply terminal
17	V_{DD}	I	Power supply terminal
18	TRV	O	Traverse servo control output
19	TVD	O	Traverse drive signal output
20	FOD	O	Focus drive signal output
21	TRD	O	Tracking drive signal output

Pin No.	Mark	I/O Division	Function
22	KICK	O	Kick pulse output
23	/TEST	I	Test terminal
24	V_{SS}	—	GND terminal
25	CLVS	I	Spindle servo phase synchro signal ("H": CLV, "L": Rough servo)
26	/TRON	O	Tracking servo ON signal ("L": ON)
27	MDATA	I	Command data signal
28	MCLK	I	Command clock signal
29	MLD	I	Command load signal ("L": LOAD)
30	SENSE	O	Sense signal
31	/FLOCK	O	Optical servo condition (focus) output
32	/TLOCK	O	Optical servo condition (tracking) output
33	/RST	I	Reset signal ("L": reset)
34	XI	I	Clock input (f=16.9344MHz)
35 ∫ 38	T0 ∫ T3	O	Test terminal (Ordinaly: open)
39 ∫ 41	T4 ∫ T6	I	Test terminal (Ordinaly: L)
42	VDET	I	Oscillation det. signal ("H": det.)
43	TBAL	O	Tracking balance adj. output
44	TRCRS	I	Track cross signal input

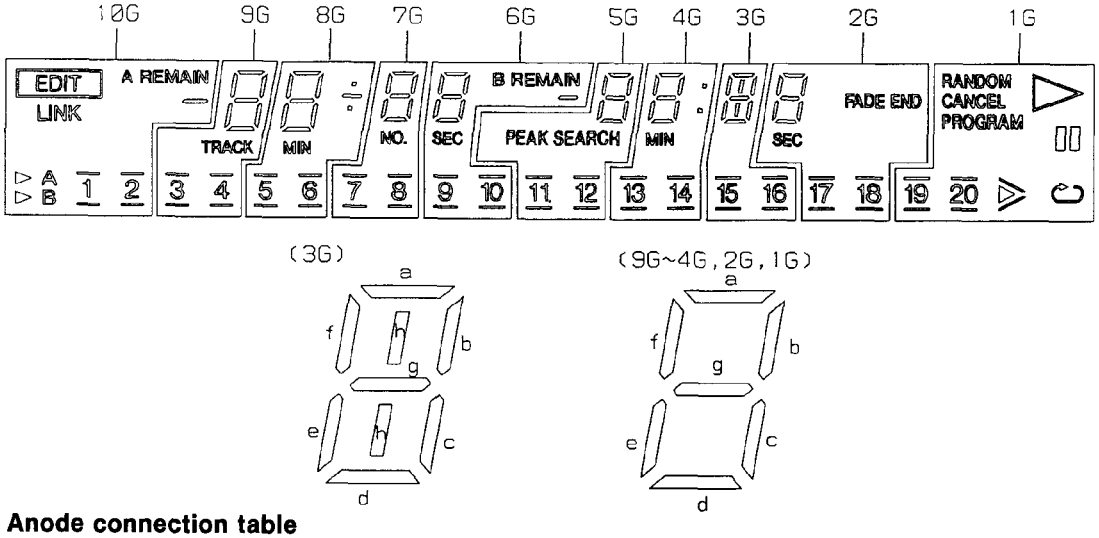
• IC703 (AN8377N): Traverse motor drive

Pin No.	Mark	I/O Division	Function
1	P V_{CC}	I	Drive power supply
2	V_{CC}	I	Power supply terminal
3	TB	O	External transistor base driving output
4	VMON	O	Voltage output
5	TVD1	I	Traverse error signal input
6	TD1	I	Tracking error signal input
7	FD1	I	Focus error signal input
8	VREF	I	Reference voltage input

Pin No.	Mark	I/O Division	Function
9	FD+	O	Non-inverting output of focus driver
10	FD−	O	Inverting output of focus driver
11	TD+	O	Non-inverting output of tracking driver
12	TD−	O	Inverting output of tracking driver
13	TVD+	O	Non-inverting output of traverse driver
14	TVD−	O	Inverting output of driver
15	/RST	O	Reset signal output
16	PC	I	PC input (connect to GND)

■ INTERNAL CONNECTION OF FL

• Grid connection diagram



• Anode connection table

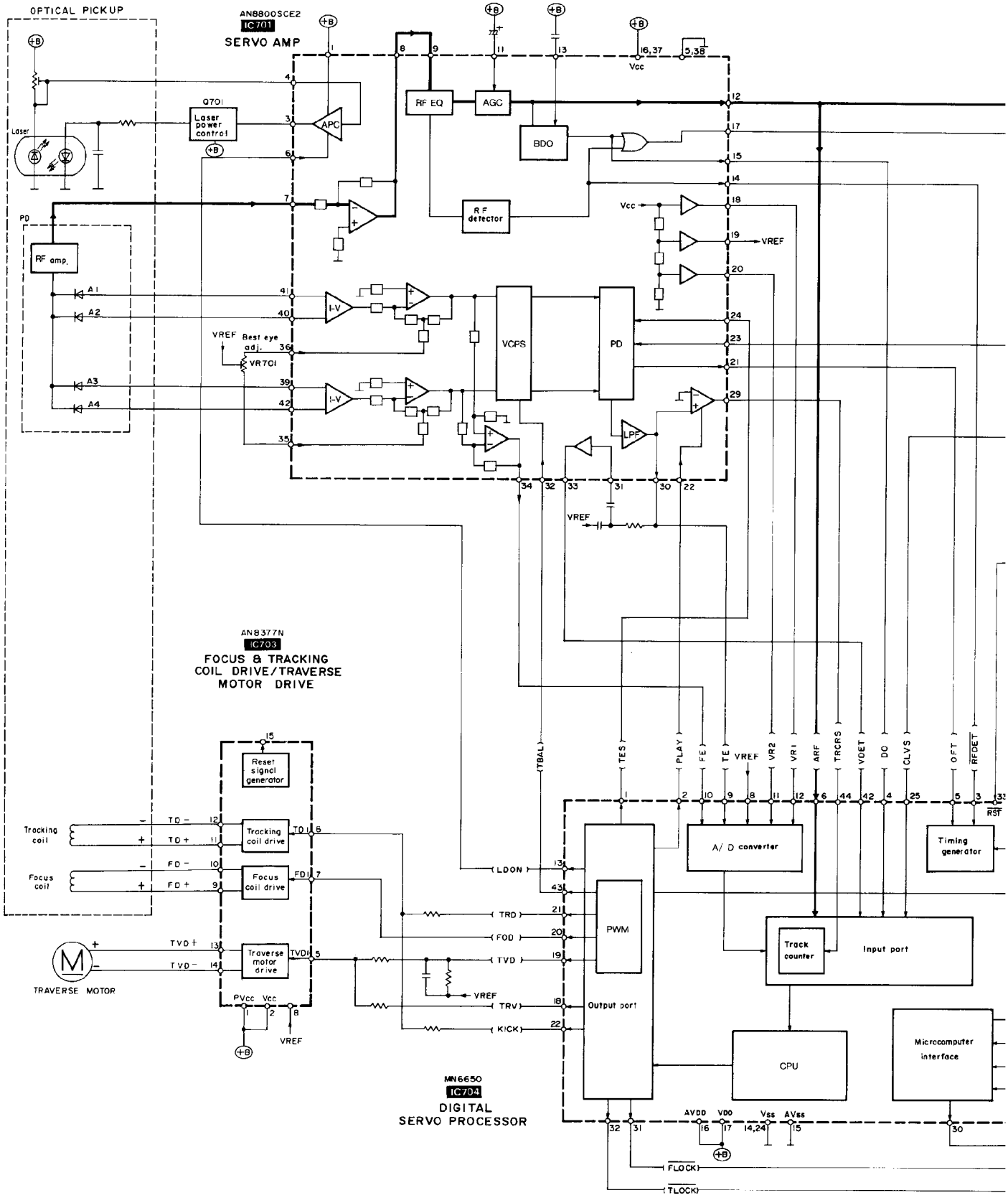
	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	▷ (A)	e	a	a	a	a	a	a	a	▷
P2	▷ (B)	b	b	b	b	b	b	b	b	▯▯
P3	LINK	c	c	c	c	c	c	c	c	↻
P4	-	d	d	d	d	d	d	d	d	/
P5	-	e	e	e	e	e	e	e	e	▷
P6	EDIT A/B	f	f	f	f	f	f	f	f	/
P7	-	g	g	g	g	g	g	g	g	CANCEL
P8	-	TRACK	MIN	NO.	SEC	SEARCH	MIN	h	SEC	-
P9	⬭	-	⬭	-	⬭	PEAK	-	-	FADE END	RANDOM
P10	A REMAIN	-	▫	-	B REMAIN	-	▫	-	-	PROGRAM
P11	(1)	(3)	(5)	(7)	(9)	(11)	(13)	(15)	(17)	(19)
P12	1	3	5	7	9	11	13	15	17	19
P13	(1)	(3)	(5)	(7)	(9)	(11)	(13)	(15)	(17)	(19)
P14	(2)	(4)	(6)	(8)	(10)	(12)	(14)	(16)	(18)	(20)
P15	2	4	6	8	10	12	14	16	18	20
P16	(2)	(4)	(6)	(8)	(10)	(12)	(14)	(16)	(18)	(20)

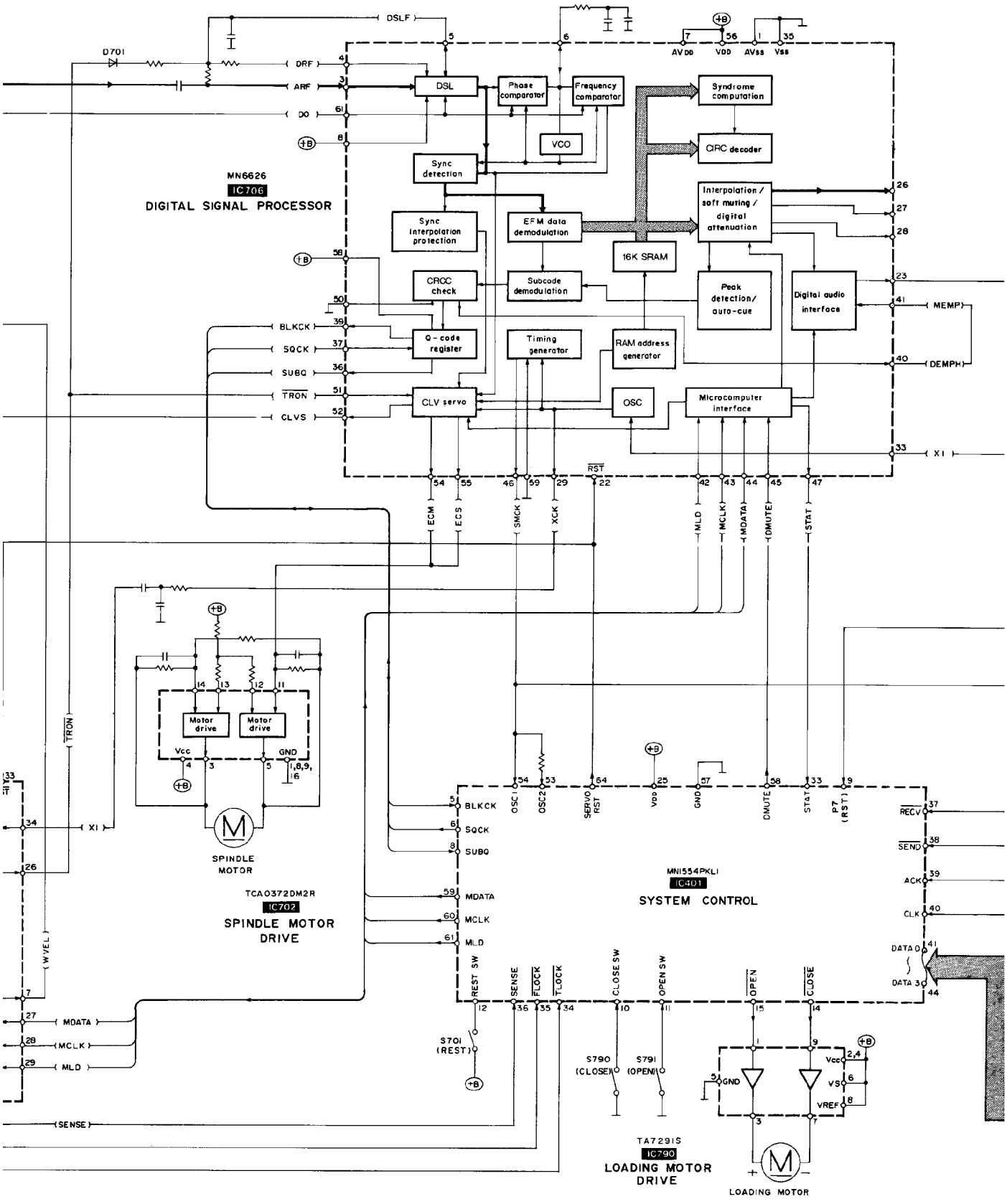
• Pin connection

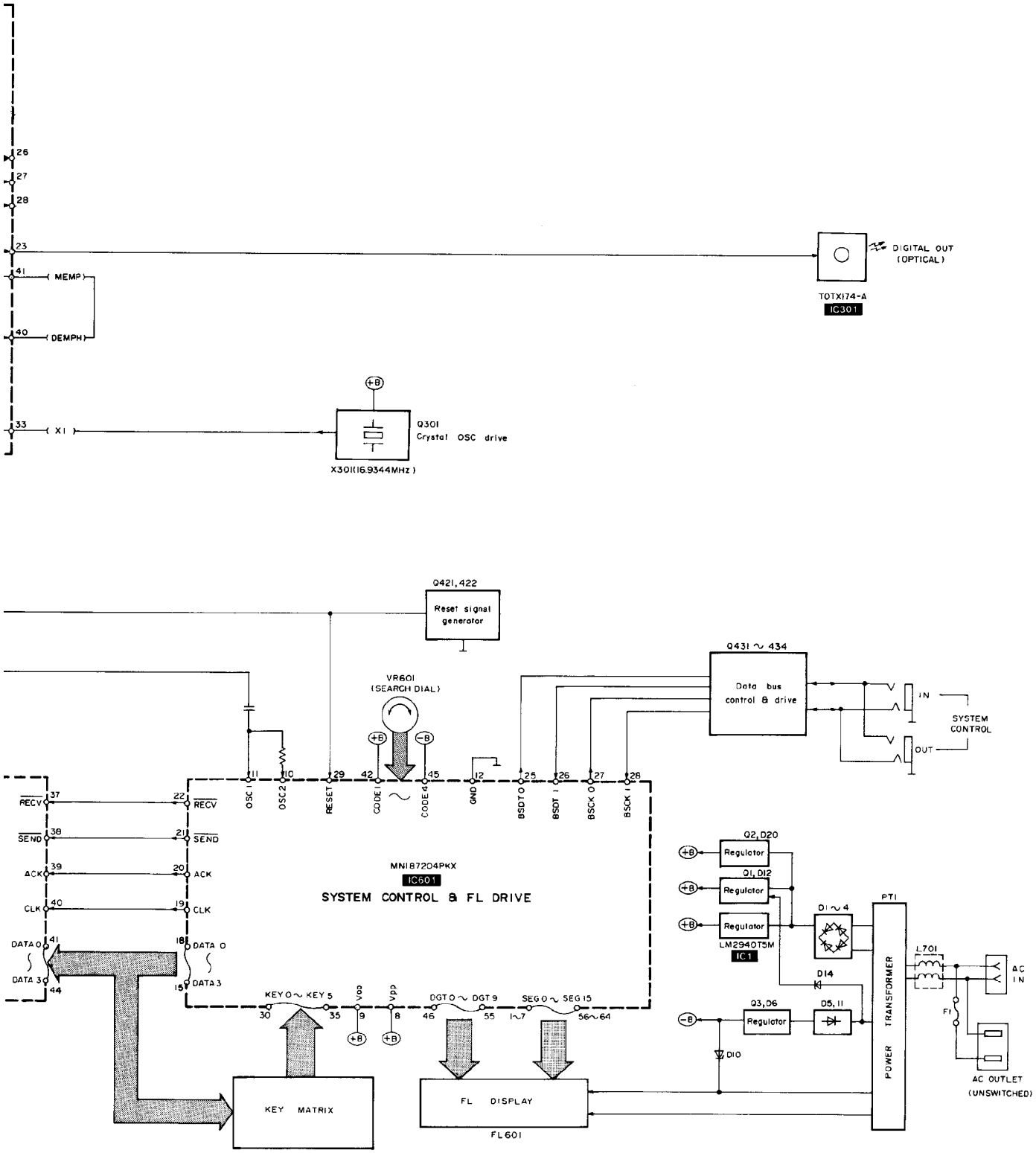
PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
CONNECTION	F1	F2	NP	NP	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	NC	NC	F1	F2

NOTE 1) F1,F2 --- Filament
2) NP ------ No pin
3) NC ------ No connection
4) 1G~10G --- Grid

■BLOCK DIAGRAM




MN6626
IC706
DIGITAL SIGNAL PROCESSOR
DSL
Phase comparator
Frequency comparator
VCO
Sync detection
Sync interpolation protection
CRCC check
Q-code register
CLV servo
EFM data demodulation
Subcode demodulation
Timing generator
Syndrome computation
CIRC decoder
16K SRAM
RAM address generator
OSC
Interpolation / soft muting / digital attenuation
Peak detection / auto-cue
Digital audio interface
Microcomputer interface
AVDD
VDD
AVSS
VSS
DSLF
DRF
ARF
DO
BLKCK
SQCK
SUBQ
TRON
CLVS
MEMP
DEMPH
XI
RST
ECM
ECS
SMCK
XCK
MLD
MCLK
MDATA
DMUTE
STAT
Motor drive
Motor drive
Vcc
GND
SPINDLE MOTOR
TCA0372DM2R
IC702
SPINDLE MOTOR DRIVE
WVEL
MDATA
MCLK
MLD
SENSE
MN1554PKLI
IC401
SYSTEM CONTROL
OSC1
OSC2
SERVO RST
VDD
GND
DMUTE
STAT
P7 (RST)
RECV
SEND
ACK
CLK
DATA 0
DATA 3
REST SW
SENSE
FLOCK
TLOCK
CLOSE SW
OPEN SW
OPEN
CLOSE
S701 (REST)
S790 (CLOSE)
S791 (OPEN)
TA7291S
IC790
LOADING MOTOR DRIVE
Vcc
GND
VS
VREF
LOADING MOTOR



Note:

→ Audio signal

■ SCHEMATIC DIAGRAM (Parts list on pages 42~45.)

(This schematic diagram may be modified at any time with development of new technology.)

Note:

- **S601** : Disc holder open/close (▲ OPEN/CLOSE) switch.
- **S602** : Stop (■ STOP) switch.
- **S603** : Pause (❚❚ PAUSE) switch.
- **S604** : Play (▷ PLAY) switch.
- **S605, 606** : Skip (|◀◀ SKIP ▶▶|) switches. [S605: |◀◀, S606: ▶▶|]
- **S609** : Repeat play (REPEAT) switch.
- **S610** : Program (PROGRAM) switch.
- **S611** : Power (STANDBY ⏻ /ON) switch.
- **S612** : Edit mode (NORMAL, TAPE LENGTH) switch.
- **S613** : Tape side select (SIDE A/B) switch.
- **S614** : Random play (RANDOM) switch.
- **S701** : Rest detector switch in "off" position.
- **S701A** : Voltage adj. switch in "240V" position. [For (GC) area only.] (110V ↔ 127V ↔ 220V ↔ 240V)
- **S790** : Disc holder "close" detector switch.
- **S791** : Disc holder "open" detector switch.

- The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis.
  Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.
  * The parenthesized are the values of voltage generated during playing (Test disc 1kHz, L+R, 0dB), others are voltage values in stop mode.

- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

  The supply part number is described alone in the replacement parts list.

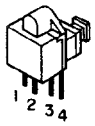
Part No.	Production Part No.	Supply Part No.
IC1	LM2940T5M	LM2940T5

- ——— / — — — : Positive voltage lines and negative voltage lines.
  ⋯⋯ : audio signal lines.

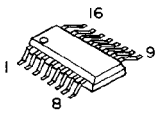
Caution!
IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.

• Terminal guide of IC's, transistors and diodes

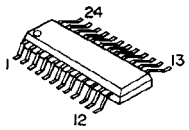
TOTX174-A



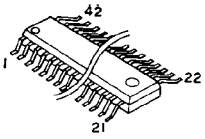
TCA0372DM2R



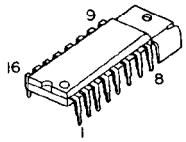
MN6475



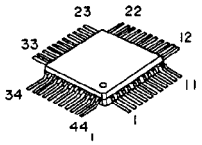
AN8800SCE2



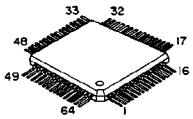
AN8377N



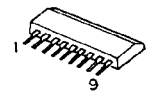
MN6650



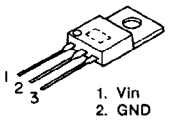
MN1554PKL1
MN187204PKX
MN6626



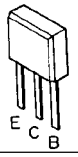
TA7291S



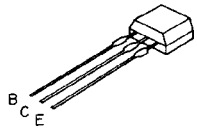
LM2940T5M



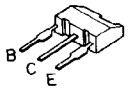
2SC3311QRSTA
UN4112TA
UN4212TA



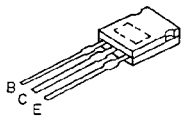
2SD2144STA
DTA114ESTP
DTC144ESTP



2SB1238QSTV6
2SD1862QRTV6

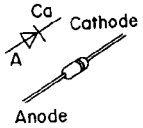


2SD2037EFTA

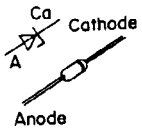


2SB709STW

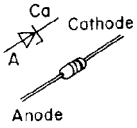
MA700ATA
1SS254TA
SVD1SR35200V



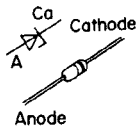
SVDMTZ8R2B



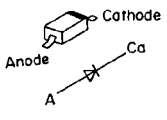
MA4039HTA
MA4062MTA
MA4082MTA

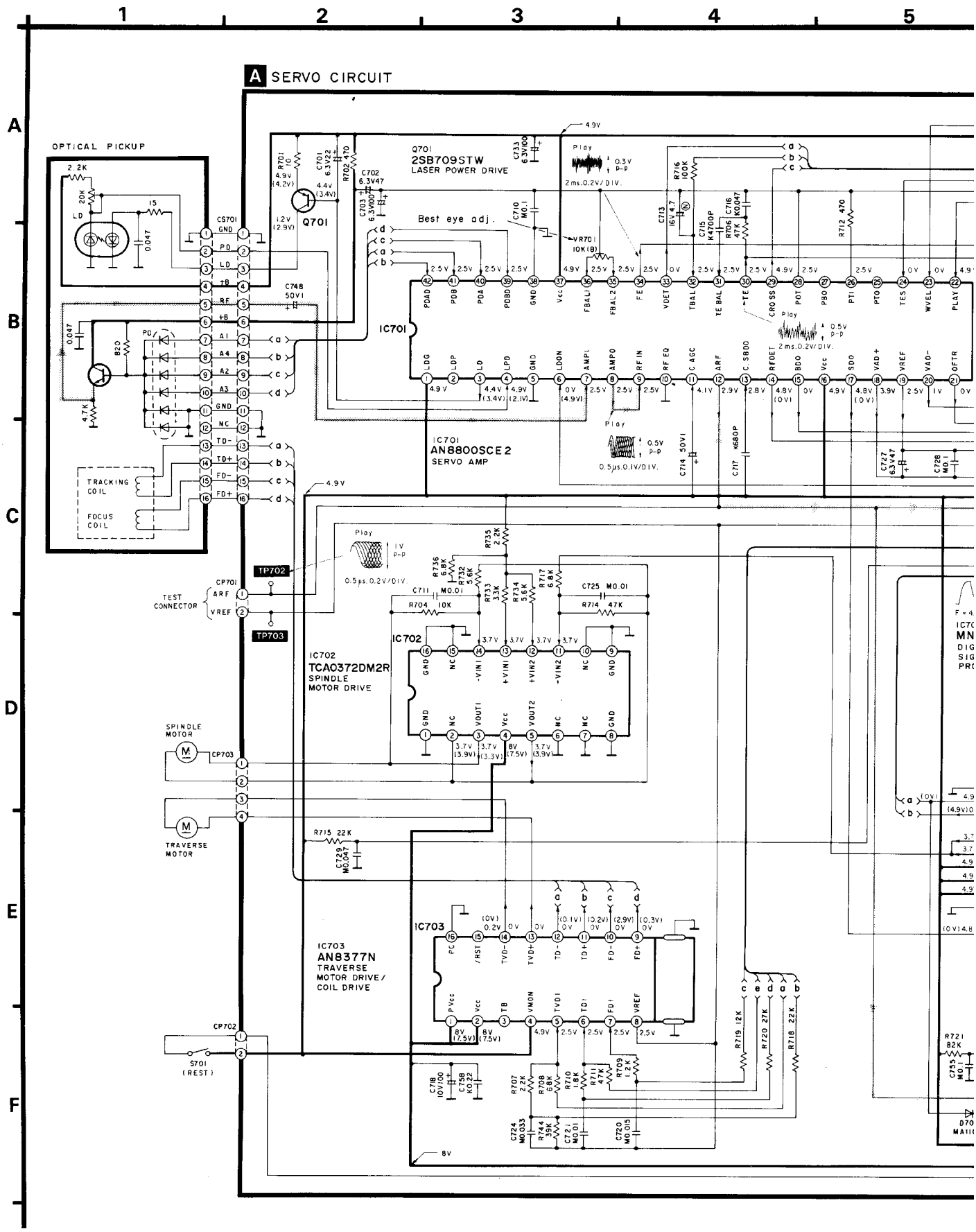


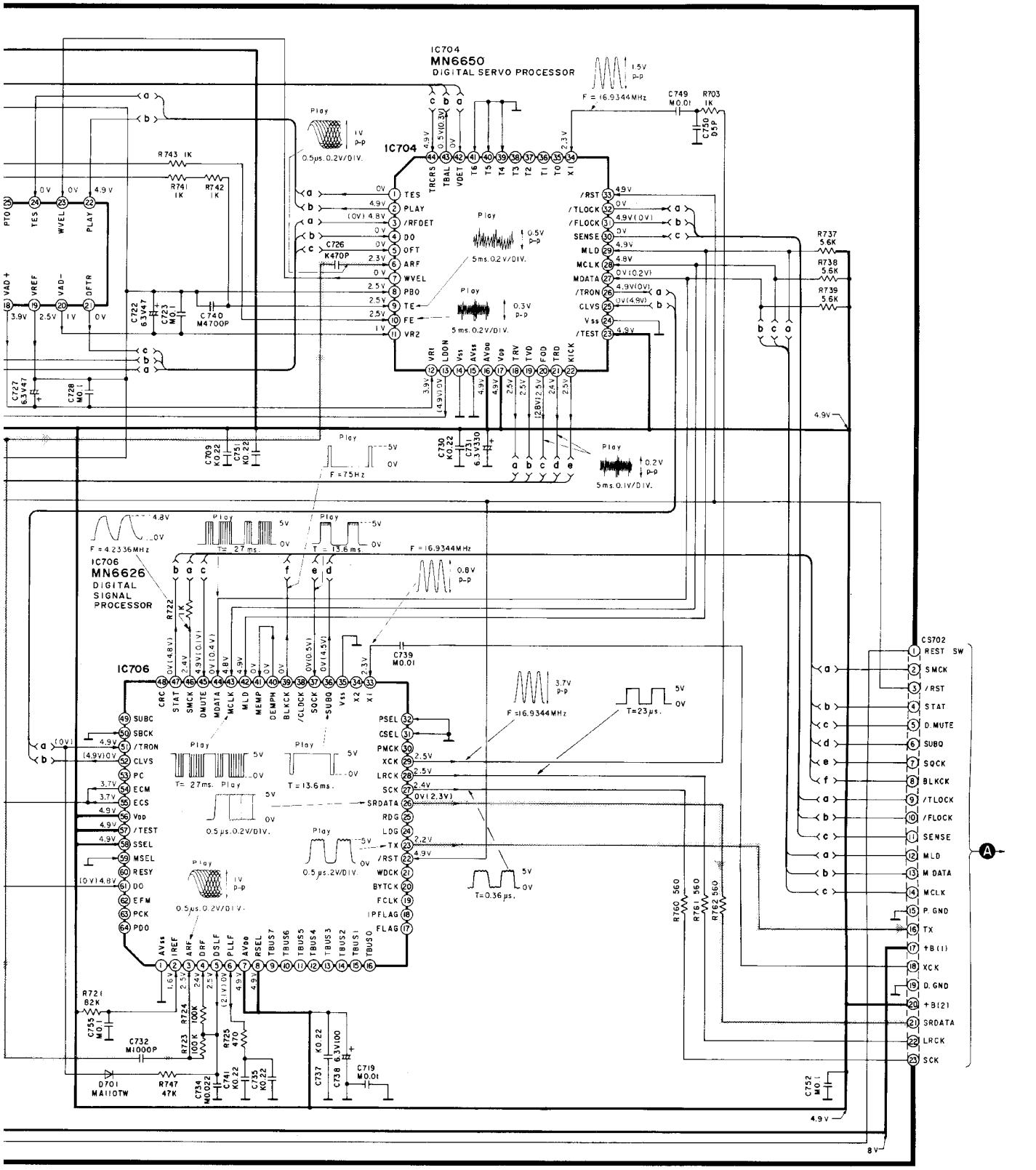
MA4330MTA

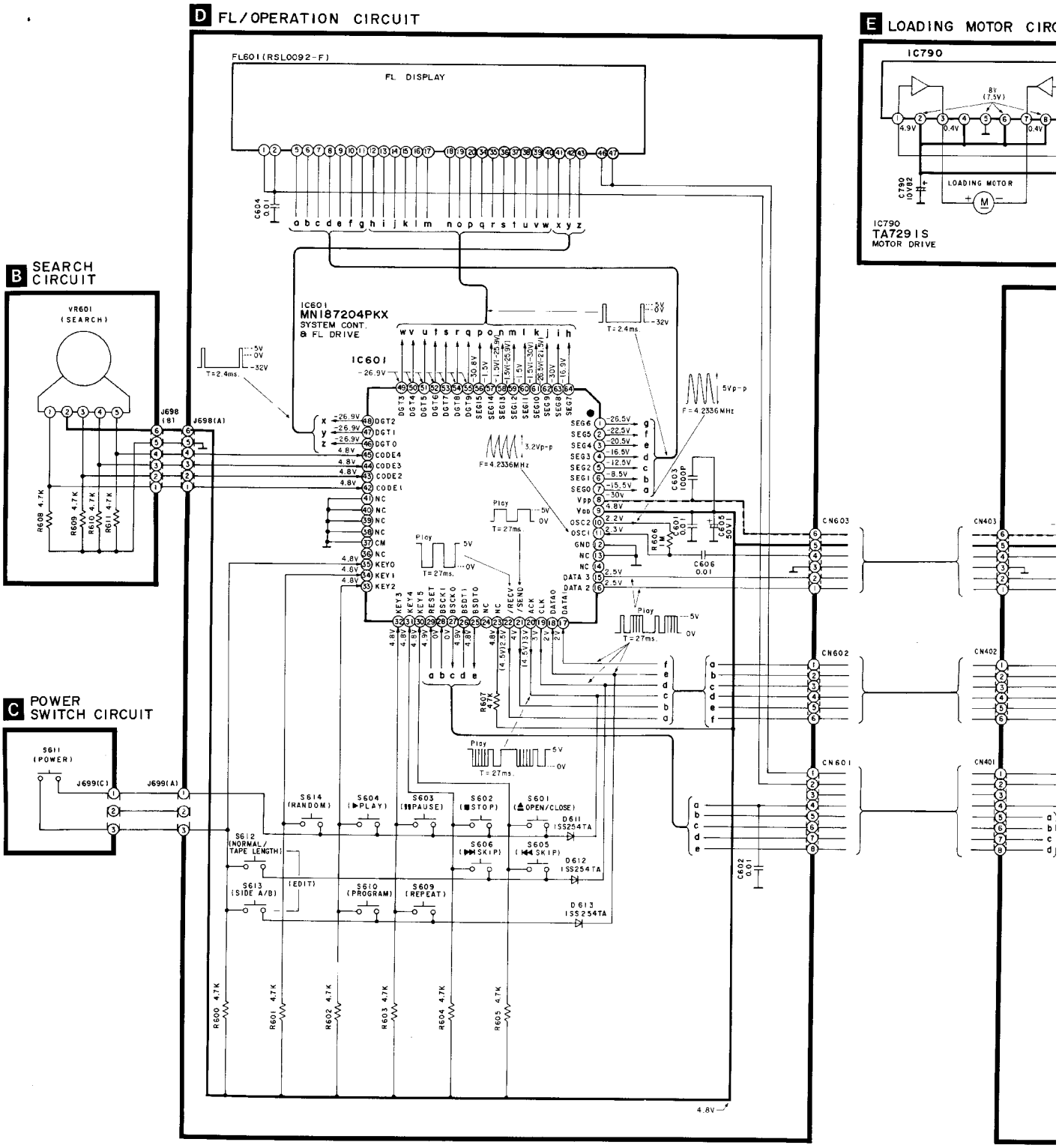


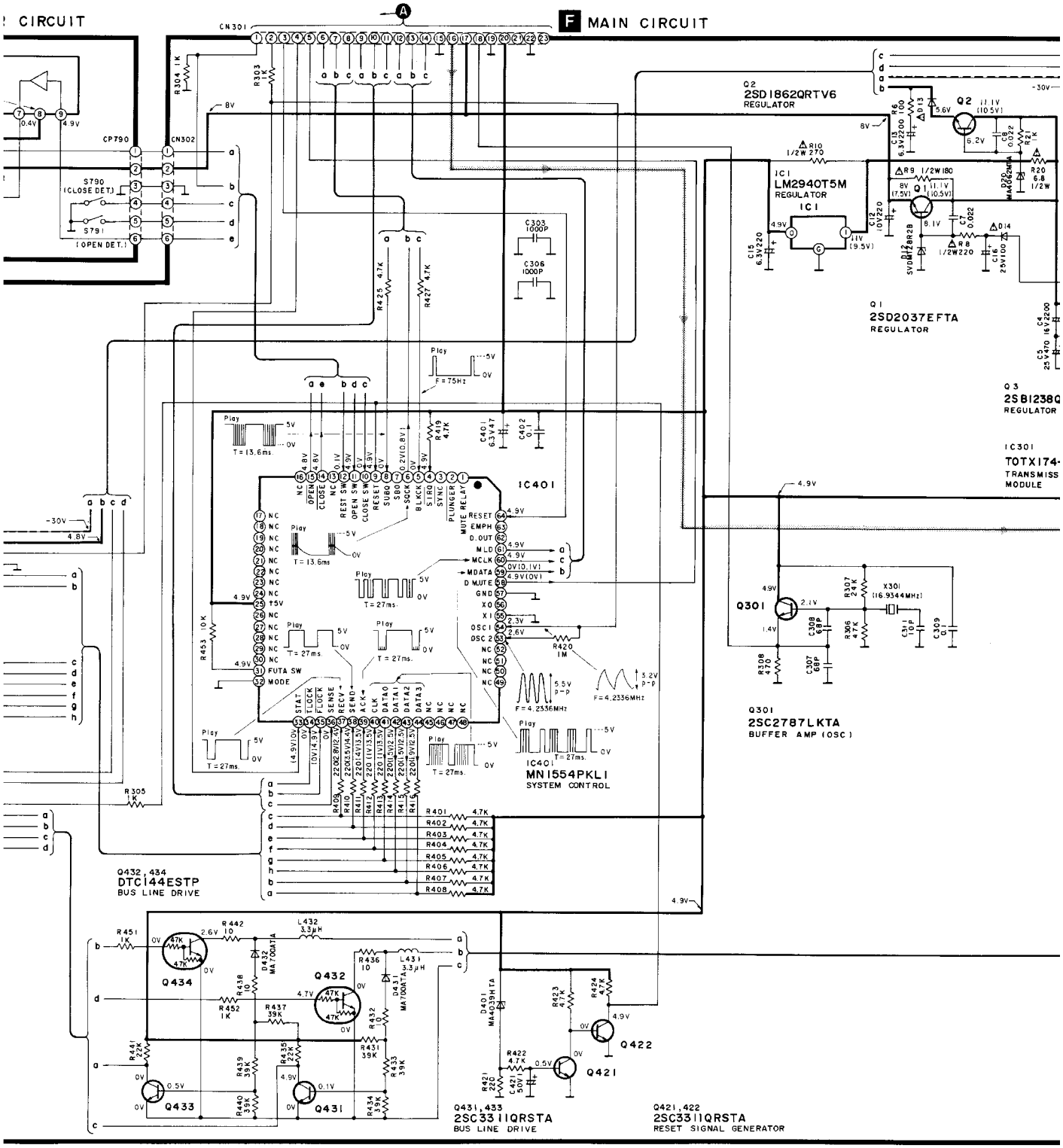
MA110TW

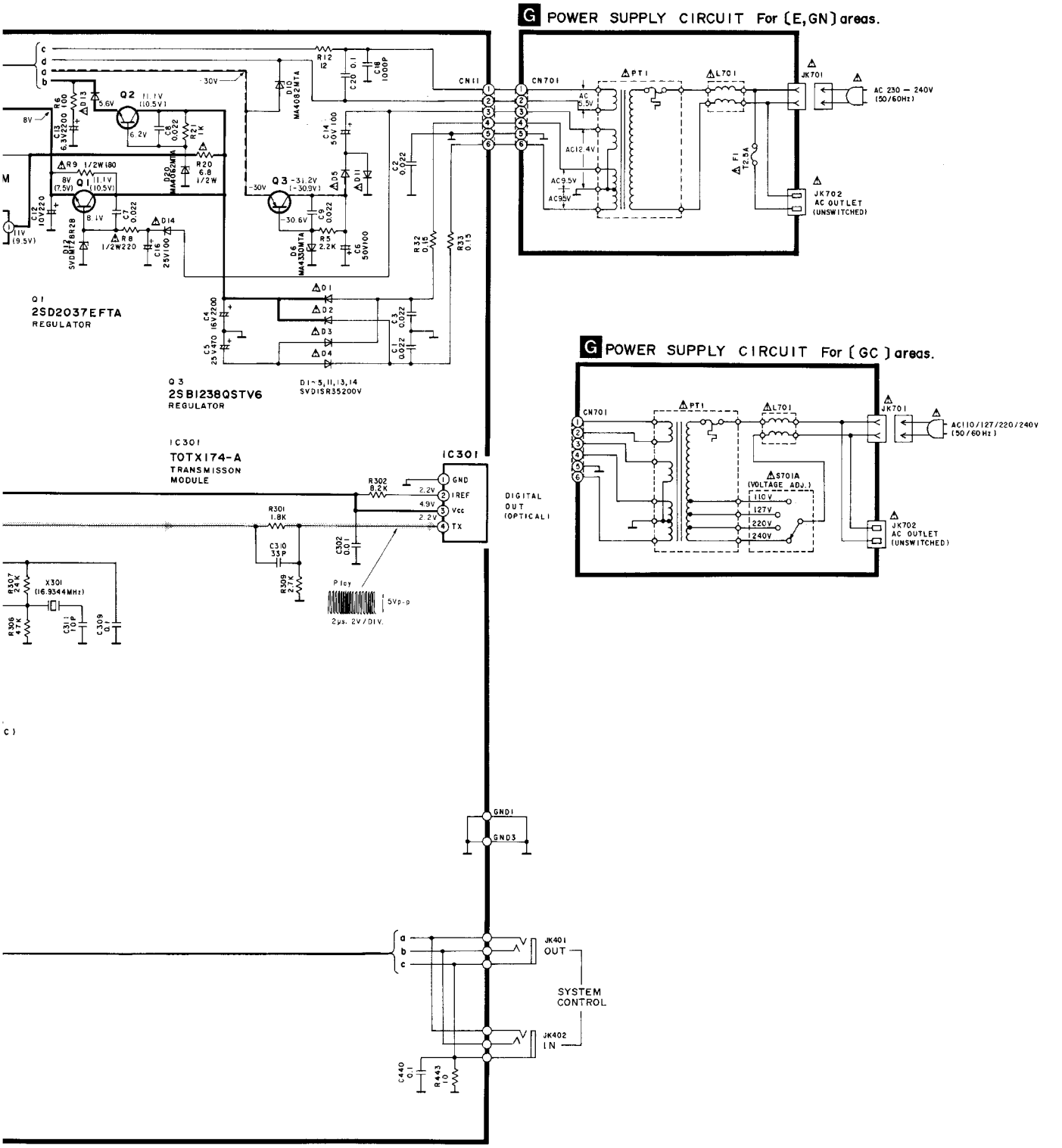



A SERVO CIRCUIT
OPTICAL PICKUP
Q701
2SB709STW
LASER POWER DRIVE
IC701
AN8800SCE2
SERVO AMP
IC702
TCA0372DM2R
SPINDLE
MOTOR DRIVE
IC703
AN8377N
TRAVERSE
MOTOR DRIVE/
COIL DRIVE
TRACKING COIL
FOCUS COIL
TEST CONNECTOR
SPINDLE MOTOR
TRAVERSE MOTOR
S701 (REST)
TP702
TP703

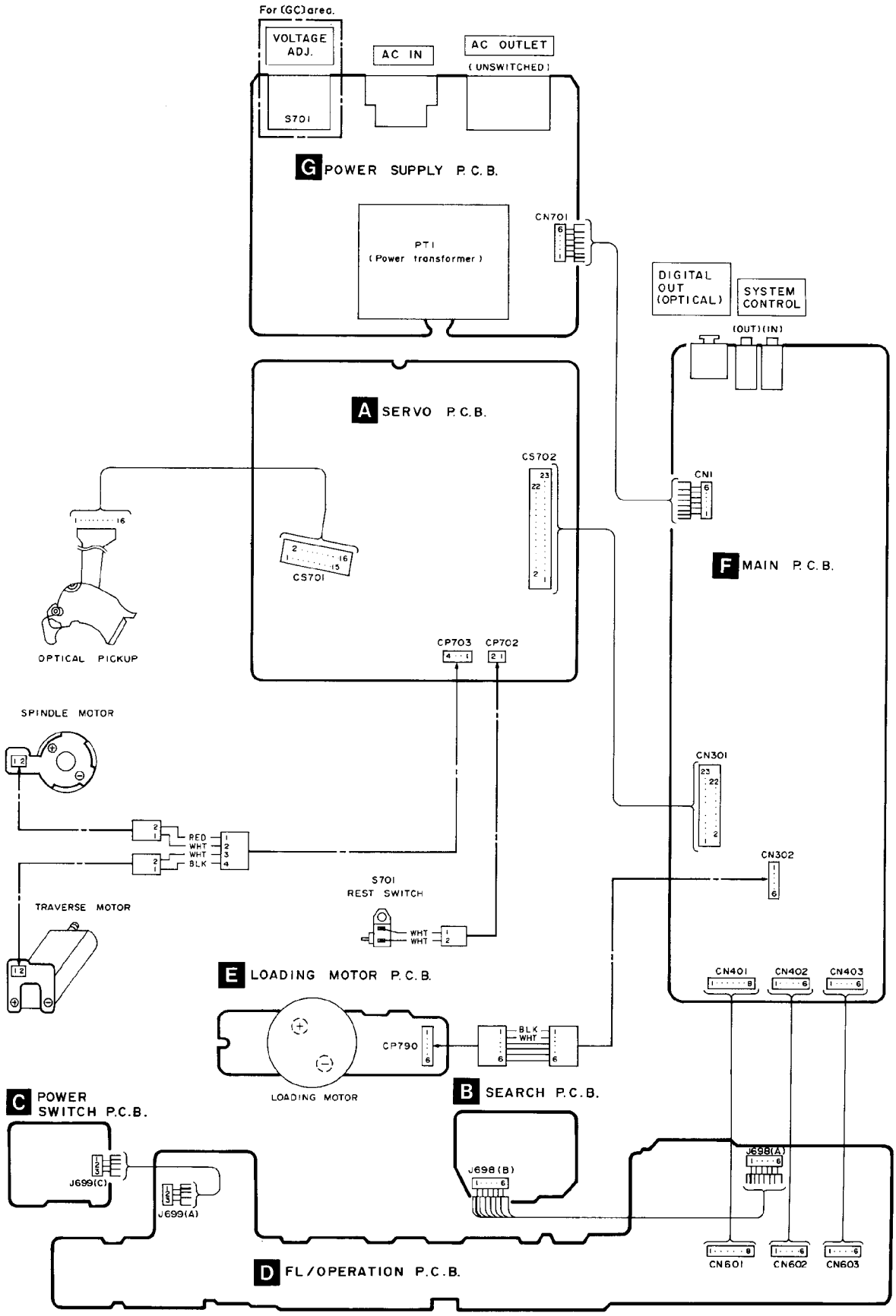

IC704
MN6650
DIGITAL SERVO PROCESSOR
IC706
MN6626
DIGITAL SIGNAL PROCESSOR
CS702
REST SW
SMCK
/RST
STAT
D.MUTE
SUBQ
SQCK
BLKCK
/TLOCK
/FLOCK
SENSE
MLD
M.DATA
MCLK
P.GND
TX
+B(11)
XCK
D.GND
+B(12)
SRDATA
LRCK
SCK
TES
PLAY
/RFDET
DO
OFT
ARF
WVEL
PBO
TE
FE
VR2
/RST
/TLOCK
/FLOCK
SENSE
MLD
MCLK
MDATA
/TRON
CLVS
Vss
/TEST
F = 16.9344MHz
F = 4.2336MHz
F = 75Hz
T= 27ms.
T = 13.6ms.
T=23μs.
T=0.36μs.
0.5μs.0.2V/DIV.
5ms.0.2V/DIV.
5ms.0.1V/DIV.
R743 1K
R741 1K
R742 1K
R737 5.6K
R738 5.6K
R739 5.6K
R760 560
R761 560
R762 560
C740 M4700P
C739 M0.01
C749 M0.01
R703 1K
C750 05P
C722 6.3V47
C723 M0.1
C727 6.3V47
C728 M0.1
C709 K0.22
C751 K0.22
C730 K0.22
C731 6.3V330
C752 M0.1
C755 M0.1
C732 M1000P
C734 M0.022
C741 K0.22
C735 K0.22
C737
C738 6.3V100
C719 M0.01
R721 82K
R722 1K
R723 100K
R724 100K
R725 470
R747 47K
D701 MA110TW


D FL/OPERATION CIRCUIT
FL601(RSL0092-F)
FL DISPLAY
IC601
MN187204PKX
SYSTEM CONT.
& FL DRIVE
B SEARCH CIRCUIT
VR601
(SEARCH)
C POWER SWITCH CIRCUIT
S611
(POWER)
E LOADING MOTOR CIRC
IC790
TA7291S
MOTOR DRIVE
LOADING MOTOR
CN603
CN602
CN601
CN403
CN402
CN401
S614 (RANDOM)
S604 (▶PLAY)
S603 (❚❚PAUSE)
S602 (■STOP)
S601 (▲OPEN/CLOSE)
S606 (▶▶SKIP)
S605 (◀◀SKIP)
S612 (NORMAL/TAPE LENGTH)
S613 (SIDE A/B)
S610 (PROGRAM)
S609 (REPEAT)
(EDIT)
D611 1SS254TA
D612 1SS254TA
D613 1SS254TA


CIRCUIT
F MAIN CIRCUIT
CN301
CN302
CP790
S790 (CLOSE DET.)
S791 (OPEN DET.)
Q2
2SD1862QRTV6
REGULATOR
IC1
LM2940T5M
REGULATOR
Q1
2SD2037EFTA
REGULATOR
Q3
2SB1238Q
REGULATOR
IC301
T0TX174-
TRANSMISS
MODULE
IC401
MN1554PKLI
SYSTEM CONTROL
Q301
2SC2787LKTA
BUFFER AMP (OSC)
Q432, 434
DTC144ESTP
BUS LINE DRIVE
Q431, 433
2SC3311QRSTA
BUS LINE DRIVE
Q421, 422
2SC3311QRSTA
RESET SIGNAL GENERATOR
Play
T = 13.6ms.
T = 27ms.
F = 75Hz
F = 4.2336MHz
X301
(16.9344MHz)


G POWER SUPPLY CIRCUIT For (E,GN) areas.
CN701
PT1
L701
JK701
AC 230 – 240V (50/60Hz)
JK702 AC OUTLET (UNSWITCHED)
F1 T2.5A
AC 9.5V
AC 12.4V
Q1 2SD2037EFTA REGULATOR
Q3 2SB1238QSTV6 REGULATOR
D1~5,11,13,14 SVD1SR35200V
G POWER SUPPLY CIRCUIT For (GC) areas.
S701A (VOLTAGE ADJ.)
110V
127V
220V
240V
AC 110/127/220/240V (50/60Hz)
IC301 TOTX174-A TRANSMISSON MODULE
GND
IREF
Vcc
TX
DIGITAL OUT (OPTICAL)
X301 (16.9344MHz)
5Vp-p
2μs. 2V/DIV.
GND1
GND3
JK401 OUT
JK402 IN
SYSTEM CONTROL

■ WIRING CONNECTION DIAGRAM



■ REPLACEMENT PARTS LIST

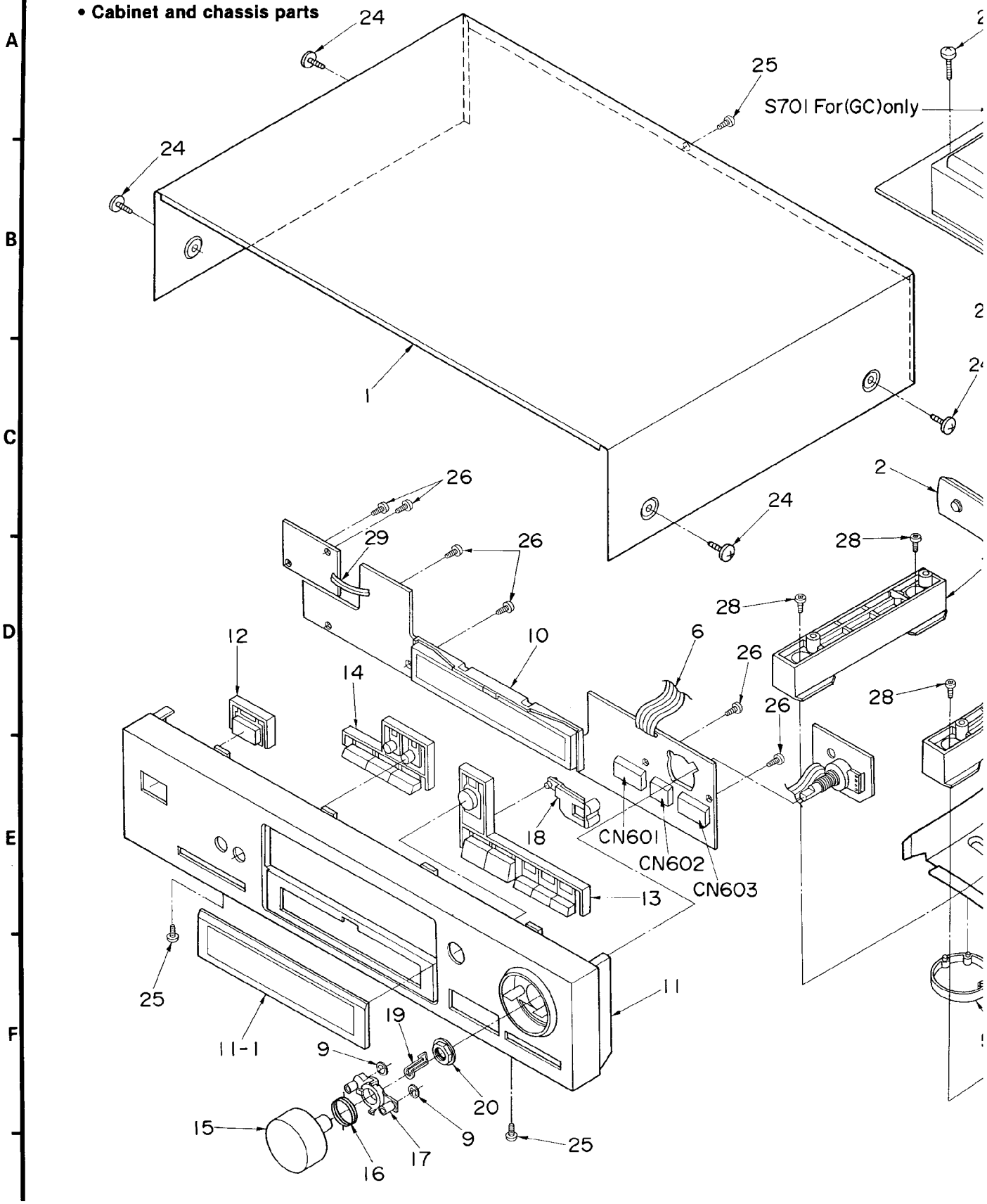
Notes : * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
* Warning: This product uses a laser diode. Refer to caution statements on page 3.
* ACHTUNG:
Die lasereinheit nicht zerlegen.
Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

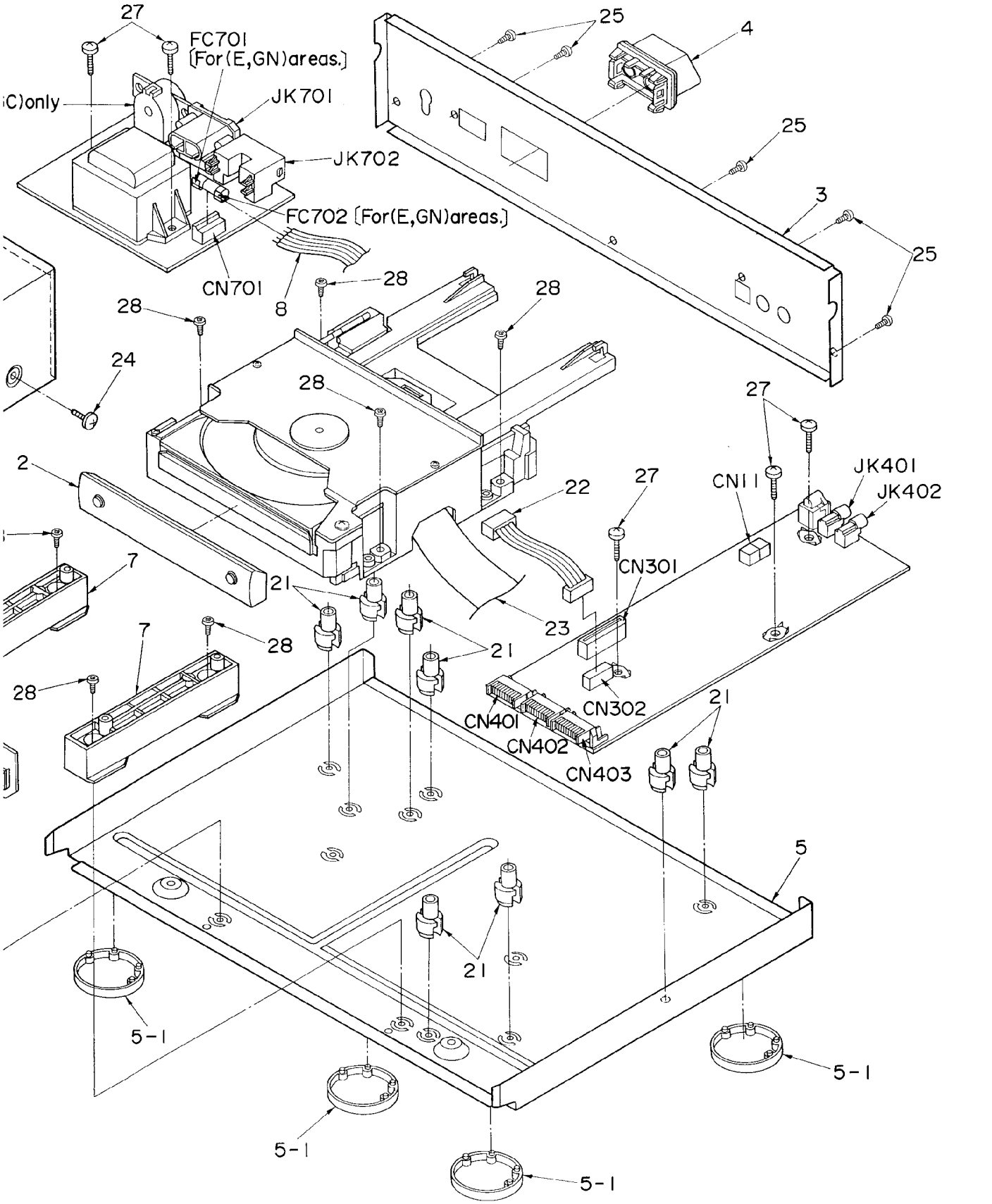
Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	RKM0139-K	CABINET	
2	RGK0287-K	TRAY ORNAMENT	
3	RGR0098G-A1	REAR PANEL	(E)
3	RGR0098H-A2	REAR PANEL	(GC)
3	RGR0098J-A1	REAR PANEL	(GN)
4	RJS1A4902-A	AC OUTLET COVER	(E)
4	SJS9331A	AC OUTLET COVER	(GC)
4	RJS1A4602	AC OUTLET COVER	(GN)
5	RFKJSX502E-K	CHASSIS ASS'Y	
5-1	RKA0011-2	FOOT	
6	RWJ0906150KK	FLAT CABLE(6P) (J698)	
7	RMR0343	MECH SUPPORT	
8	RWJ1806195QQ	FLAT CABLE(6P)	
9	CSTW-2	WASHER	
10	RMN0094	FL HOLDER	
11	RFKGLPJ38E-K	FRONT PANEL ASS'Y	
11-1	RKW0118-K1	WINDOW	
12	RGU0437-K1	POWER BUTTON	
13	RGU0516-K1	MAIN BUTTON	
14	RGU0517-K	SUB BUTTON	
15	RGW0114-K	SEARCH SHUTTLE KNOB	
16	RME0082	RETURN SPRING	
17	RMR0418	SPRING HOLDER	
18	RMR0436	KNOB LEVER	
19	SHR9451	HOLDER	
20	SNE4021	NUT	
21	SHE187-2	P.C.B SUPPORT	
22	REX0354	CONNECTOR ASS'Y(6P)	
23	RWJ5223150E3	FLAT CABLE(23P)	
24	RHD30007	SCREW	
25	XTBS3+8JFZ1	SCREW	
26	XTBS26+8J	SCREW	
27	XTB3+20JFZ	SCREW	
28	XTB3+8JFZ	SCREW	
29	RWJ1803050KK	FLAT CABLE(3P) (J699)	
		TRAVERSE DECK	
301	REM0019	LOADING MOTOR ASS'Y	
302	RMK0105	CHASSIS	
303	RME0063	SPRING, LOCK LEVER	
304	RMG0158	BELT, RUBBER	
305	RML0177	LEVER, CONVERSION	
306	RML0178	LEVER, LOCK	

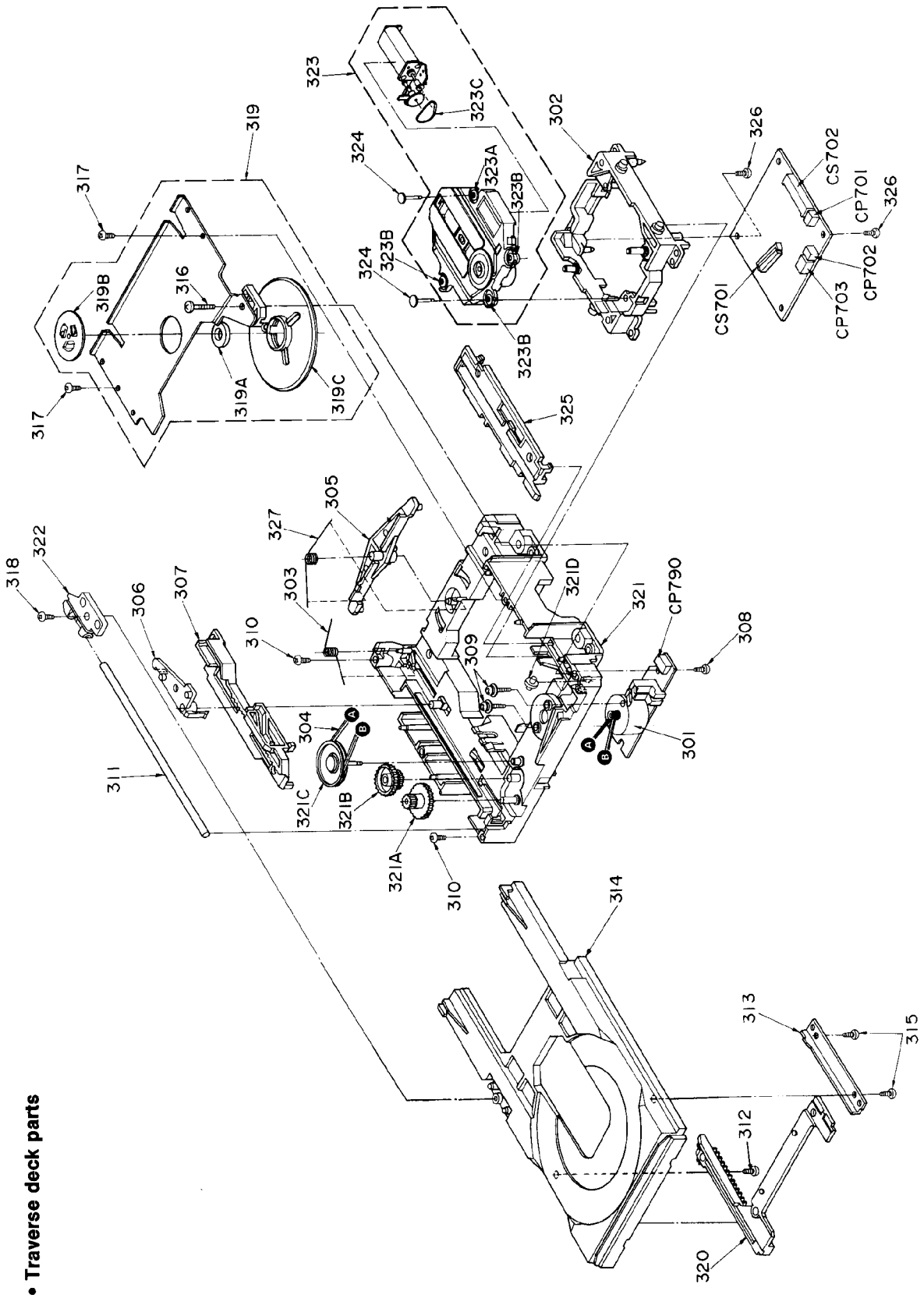
Ref. No.	Part No.	Part Name & Description	Remarks
307	RMM0058	SLIDE PLATE(1)	
308	XTN26+6G	SCREW	
309	XYN2+F6FZ	SCREW	
310	RHD20010	SCREW	
311	RMU0046	TRAY GUIDE SHAFT	
312	RHD20009-1	SCREW	
313	RMA0328	SHUTTER HOLDER	
314	RGQ0066-K	TRAY(B)	
315	XTN2+8G	SCREW	
316	XTB3+25GFZ	SCREW	
317	XTN26+6G	SCREW	
318	XTN3+8JFZ	SCREW	
319	RXQ0122	CLAMPING PLATE ASS'Y	
319A	RHM245ZA	MAGNET	
319B	RMR0334	FIXED PLATE	
319C	RXQ0123	MAGNET HOLDER ASS'Y	
320	RFKNLDN7N-K	DRIVE GEAR(2)ASS'Y	
321	RFKJXDT77-H	MECHANICAL CHASSIS ASS'Y	
321A	RDG0142	RELAY GEAR	
321B	RDG0143	DRIVE GEAR(1)	
321C	RDP0041	RELAY PULLEY	
321D	SDRD14	ROLLER(B)	
322	RFKNXDT77C-H	GUIDE HOLDER ASS'Y	
323	SODD110Z	TRAVERSE DECK UNIT	⚠
323A	SHGD112	FLOATING RUBBER(A)	
323B	SHGD113-1	FLOATING RUBBER(B)	
323C	RDV0014	BELT, RUBBER	
324	RMS0123-1	FIXED PIN	
325	RMM0059	SLIDE PLATE(2)	
326	XTV26+6G	SCREW	
327	RME0087	SPRING, ASSISTANCE	

■ EXPLODED VIEWS

• **Cabinet and chassis parts**




27
FC701
(For(E,GN)areas.)
JK701
JK702
FC702 (For(E,GN)areas.)
CN701
8
28
25
4
3
24
2
7
21
22
23
27
CN11
JK401
JK402
CN301
CN401
CN402
CN403
CN302
5
5-1



• Traverse deck parts

■ REPLACEMENT PARTS LIST

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Parts without these indications can be used for all areas.
* Warning: This product uses a laser diode. Refer to caution statements on page 3.
* ACHTUNG:
Die lasereinheit nicht zerlegen.
Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC1	LM2940T5	IC, REGULATOR	
IC301	TOTX174-A	IC, DIGITAL OUTPUT(OPTICAL)	
IC401	MN1554PKL1	IC, SYSTEM CONTROL	
IC601	MN187204PKX	IC, SYSTEM CONTROL&FL DRIVE	
IC790	TA7291S	IC, L. P. F.	
		TRANSISTOR(S)	
Q1	2SD2037EFTA	TRANSISTOR	
Q2	2SD1862QRTV6	TRANSISTOR	
Q3	2SB1238QSTV6	TRANSISTOR	
Q301	2SC2787LKTA	TRANSISTOR	
Q421, 422	2SC3311A-Q	TRANSISTOR	
Q431	2SC3311A-Q	TRANSISTOR	
Q432	DTC144EKT96	TRANSISTOR	
Q433	2SC3311A-Q	TRANSISTOR	
Q434	DTC144EKT96	TRANSISTOR	
		DIODE(S)	
D1-5	SVD1SR35200A	DIODE	⚠
D6	MA4330MTA	DIODE	
D10	MA4082MTA	DIODE	
D11	SVD1SR35200A	DIODE	⚠
D12	SVDMTZ8R2B	DIODE	
D13, 14	SVD1SR35200A	DIODE	⚠
D20	MA4062MTA	DIODE	
D401	MA4039HTA	DIODE	
D431, 432	MA700	DIODE	
D611-613	1SS254TA	DIODE	
		VARIABLE RESISTOR(S)	
VR601	EVQWVN00004E	V. R, SEARCH DIAL	
		COIL(S)	
L431, 432	RLQZP3R3KT-Y	COIL	
L701	RLQZ600M-W	COIL	⚠
		OSCILLATOR(S)	
X301	SVQAT1693	OSCILLATOR(16. 9344MHZ)	

Ref. No.	Part No.	Part Name & Description	Remarks
		DISPLAY TUBE	
FL601	RSL0092-F	DISPLAY TUBE	
		SWITCH(ES)	
S601	EVQ21405R	SW, OPEN/CLOSE	
S602	EVQ21405R	SW, STOP	
S603	EVQ21405R	SW, PAUSE	
S604	EVQ21405R	SW, PLAY	
S605	EVQ21405R	SW, R SKIP	
S606	EVQ21405R	SW, F. SKIP	
S609	EVQ21405R	SW, REPEAT	
S610	EVQ21405R	SW, PROGRAM	
S611	EVQ21405R	SW, POWER	
S612	EVQ21405R	SW, EDIT	
S613	EVQ21405R	SW, SIDE A/B	
S614	EVQ21405R	SW, RANDOM	
S701A	SSR187-1	SW, VOLTAGE ADJ.	(GC) ⚠
S790	RSH1A005	SW, CLOSE DETECTOR	
S791	RSH1A005	SW, OPEN DETECTOR	
		CONNECTOR(S) &SOCKET(S)	
CN11	RJS1A6606	CONNECTOR(6P)	
CN301	RJS1A6823	CONNECTOR(23P)	
CN302	RJT029W06VT	CONNECTOR(6P)	
CN401	RJU003K008M1	SOCKET(8P)	
CN402, 403	RJU003K006M1	SOCKET(6P)	
CN601	RJT003K008M1	CONNECTOR(8P)	
CN602, 603	RJT003K006M1	CONNECTOR(6P)	
CN701	SJT30643-V	CONNECTOR(6P)	
CP790	RJP6G17ZA	CONNECTOR(6P)	
		JACK(S)	
JK401	RJJ33T01	SYSTEM CONTROL	
JK402	RJJ33T01	SYSTEM CONTROL	
JK701	SJS9236	AC INLET	(E, GC) ⚠
JK701	SJSD16	AC INLET	(GN) ⚠
JK702	RJS1A4902-B	AC OUTLET	(E) ⚠
JK702	SJS9331B	AC OUTLET	(GC) ⚠
JK702	RJS1A8102	AC OUTLET	(GN) ⚠
		FUSE HOLDER(S)	
FC701, 702	EYF52BC	FUSE HOLDER	(E, GN)

Ref. No.	Part No.	Part Name & Description	Remarks
		TRANSFORMER (S)	
PT1	RTP1K4B012	POWER TRANSFORMER	(E, GN) ⚠
PT1	RTP1K4E020	POWER TRANSFORMER	(GC) ⚠
		FUSE (S)	
F1	XBA2C25TB0	FUSE, 2.5A 250V	(E, GN) ⚠
		GND PLATE (S)	
GND1, 3	SNE1004-1	GND PLATE	
		<SERVO P. C. B.>	
		INTEGRATED CIRCUIT (S)	
IC701	AN8800SCE2	IC, SERVO AMP	
IC702	TCA0372DM2R	IC, SPINDLE MOTOR DRIVE	
IC703	AN8377N	IC, TRAVERSE MOTOR DRIVE	
IC704	MN6650	IC, DIGITAL SERVO PROCESSOR	
IC706	MN6626	IC, DIGITAL SIGNAL PROCESSOR	
		TRANSISTOR (S)	
Q701	2SB709STW	TRANSISTOR	
		DIODE (S)	
D701	MA110TW	DIODE	
		VARIABLE RESISTOR (S)	
VR701	EVNDXAA00B14	V. R, BEST EYE ADJ.	
		SWITCH (ES)	
S701	SSHD5	SW, REST DETECTOR	
		PLUG (S) & SOCKET (S)	
CP701	RJP2G17ZA	PLUG (2P)	
CP702	RJP2G17ZA	PLUG (2P)	
CP703	RJP4G17ZA	PLUG (4P)	
CS701	RJU035T016-1	SOCKET (16P)	
CS702	RJS1A6723-1Q	SOCKET (23P)	

Ref. No.	Part No.	Part Name & Description	Remarks
		PACKING MATERIAL	
P1	RPG0853	PACKING CASE	
P2	RPN0413-1	PAD	
P3	RPQ0164	ACCESSORIES PAD	
P4	SPSD152	ACCESSORIES BOX	
P5	XZB60X60A01	RPOTECTION BAG (UNIT)	
P6	XZB23X20C03	PROTECTION BAG (CORD)	
P7	RPN0540	TRANSPORTATION PLATE	
		ACCESSORIES	
A1	RFKSLPJ38E-K	INST. MANUAL ASS'Y	(E)
A1	RQT0935-G	INSTRUCTION MANUAL	(GC, GN)
A2	RQA0013	WARRANTY CARD	(E)
A2	SQX7186	WARRANTY CARD	(GN)
A3	RQCB0169	SERVICENTER LIST	
A4	SJA187	AC POWER SUPPLY CORD	(E) ⚠
A4	RJA0004	AC POWER SUPPLY CORD	(GC) ⚠
A4	SJA173	AC POWER SUPPLY CORD	(GN) ⚠
A5	SJP2257T	L-TYPE CABLE	
A6	SJP2281	OPTICAL CABLE	
A7	SJP9215	POWER PLUG ADAPTOR	(GC) ⚠

■ RESISTORS & CAPACITORS

Notes : * Capacity valuse are in microfarads (uF) unless specified otherwise, P=Pico-farads(pF) F=Farads(F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM) , 1M=1,000k(OHM)

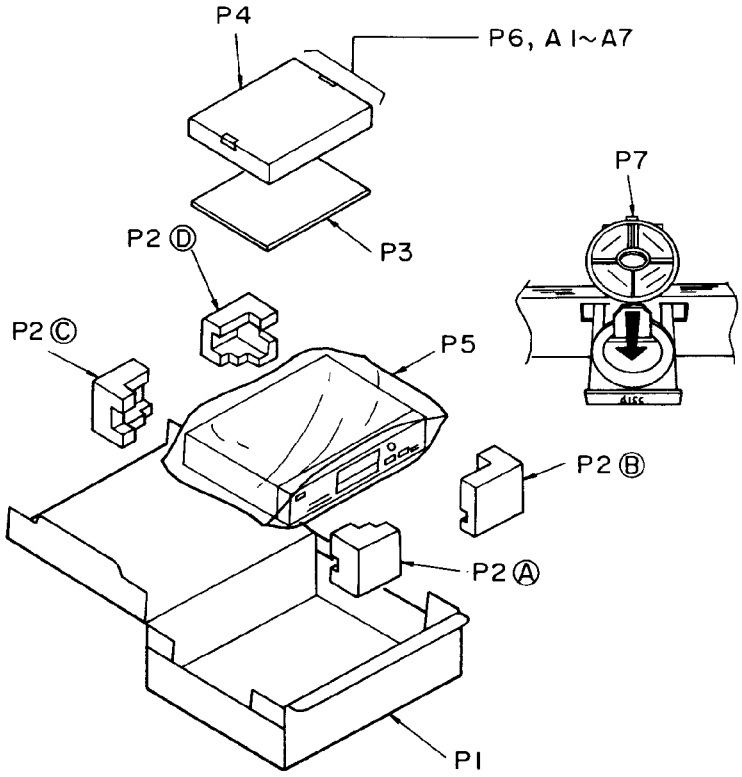
Ref. No.	Part No.	Values & Remarks
		RESISTORS
R5	ERDS2TJ222	1/4W 2.2K
R6	ERDS2TJ101	1/4W 100
R8	ERDS1FVJ221T	1/2W 220 ⚠
R9	ERDS1FVJ181T	1/2W 180 ⚠
R10	ERDS1FVJ271T	1/2W 270 ⚠
R12	ERDS2TJ120T	1/4W 12
R20	ERDS1FVJ6R8T	1/2W 6.8 ⚠
R21	ERDS2TJ102	1/4W 1K
R32, 33	ERQ16NKWR15E	1W 0.15
R301	ERDS2TJ182	1/4W 1.8K
R302	ERDS2TJ822	1/4W 8.2K
R303-305	ERDS2TJ102	1/4W 1K
R306	ERDS2TJ473	1/4W 47K
R307	ERDS2TJ243T	1/4W 24K
R308	ERDS2TJ471	1/4W 470
R309	ERDS2TJ272T	1/4W 2.7K
R401-408	ERDS2TJ472	1/4W 4.7K
R409-416	ERDS2TJ221	1/4W 220
R419	ERDS2TJ472	1/4W 4.7K
R420	ERDS2TJ105T	1/4W 1M
R421	ERDS2TJ221	1/4W 220
R422-425	ERDS2TJ472	1/4W 4.7K
R427	ERDS2TJ472	1/4W 4.7K
R431	ERDS2TJ393	1/4W 39K
R432	ERDS2TJ100	1/4W 10
R433, 434	ERDS2TJ393	1/4W 39K
R435	ERDS2TJ223	1/4W 22K
R436	ERDS2TJ100	1/4W 10
R437	ERDS2TJ393	1/4W 39K
R438	ERDS2TJ100	1/4W 10
R439, 440	ERDS2TJ393	1/4W 39K
R441	ERDS2TJ223	1/4W 22K
R442, 443	ERDS2TJ100	1/4W 10
R451, 452	ERDS2TJ102	1/4W 1K
R453	ERDS2TJ103	1/4W 10K
R600-605	ERDS2TJ472	1/4W 4.7K
R606	ERDS2TJ105T	1/4W 1M
R607	ERDS2TJ473	1/4W 47K
R608-611	ERDS2TJ472	1/4W 4.7K
		CAPACITORS
C1-3	ECKT1H223ZF	50V 0.022U
C4	ECA1CM222B	16V 2200U
C5	ECA1EM471B	25V 470U
C6	ECA1HM101B	50V 100U

Ref. No.	Part No.	Values & Remarks
C7-9	ECKT1H223ZF	50V 0.022U
C12	ECEA1AKA221Q	10V 220U
C13	ECA0JM222B	6.3V 2200U
C14	ECA1HM101B	50V 100U
C15	ECEA0JKA221B	6.3V 220U
C16	ECA1EM101B	25V 100U
C18	ECBT1H102KB5	50V 1000P
C20	ECFR1E104ZF5	25V 0.1U
C302	ECBT1E103ZF	25V 0.01U
C303	ECBT1H102KB5	50V 1000P
C306	ECBT1H102KB5	50V 1000P
C307, 308	ECBT1H680J5	50V 68P
C309	ECBT1H104ZF5	50V 0.1U
C310	ECBT1H330J5	50V 33P
C311	ECBT1H100J5	50V 10P
C401	ECEA0JKA470B	6.3V 47U
C402	ECFR1E104ZF5	25V 0.1U
C421	ECEA1HKA010B	50V 1U
C440	ECFR1E104ZF5	25V 0.1U
C601, 602	ECBT1E103ZF	25V 0.01U
C603	ECBT1H102KB5	50V 1000P
C604	ECBT1E103ZF	25V 0.01U
C605	ECEA1HKS010	50V 1U
C606	ECBT1E103ZF	25V 0.01U
C790	ECA1AKF820E	10V 82U
		<SERVO P.C.B.>
		RESISTOR(S)
R701	ERJ6GEYJ100V	1/10W 10
R702	ERJ6GEYJ471V	1/10W 470
R703	ERJ6GEYJ102V	1/10W 1K
R704	ERJ6GEYJ103V	1/10W 10K
R706	ERJ6GEYJ473V	1/10W 47K
R707	ERJ6GEYJ222V	1/10W 2.2K
R708	ERJ6GEYJ683V	1/10W 68K
R709	ERJ6GEYJ122V	1/10W 1.2K
R710	ERJ6GEYJ182V	1/10W 1.8K
R711	ERJ6GEYJ473V	1/10W 47K
R712	ERJ6GEYJ471V	1/10W 470
R714	ERJ6GEYJ473V	1/10W 47K
R715	ERJ6GEYJ223V	1/10W 22K
R716	ERJ6GEYJ104V	1/10W 100K
R717	ERJ6GEYJ682V	1/10W 6.8K
R718	ERJ6GEYJ223V	1/10W 22K
R719	ERJ6GEYJ123V	1/10W 12K
R720	ERJ6GEYJ273V	1/10W 27K
R721	ERJ6GEYJ823V	1/10W 82K

Ref. No.	Part No.	Values & Remarks
R722	ERJ6GEYJ102V	1/10W 1K
R723	ERJ6GEYJ104V	1/10W 100K
R724	ERJ6GEYJ104V	1/10W 100K
R725	ERJ6GEYJ471V	1/10W 470
R732	ERJ6GEYJ562V	1/10W 5.6K
R733	ERJ6GEYJ332V	1/10W 3.3K
R734	ERJ6GEYJ562V	1/10W 5.6K
R735	ERJ6GEYJ222V	1/10W 2.2K
R736	ERJ6GEYJ682V	1/10W 6.8K
R737	ERJ6GEYJ562V	1/10W 5.6K
R738	ERJ6GEYJ562V	1/10W 5.6K
R739	ERJ6GEYJ562V	1/10W 5.6K
R741	ERJ6GEYJ102V	1/10W 1K
R742	ERJ6GEYJ102V	1/10W 1K
R743	ERJ6GEYJ102V	1/10W 1K
R744	ERJ6GEYJ393V	1/10W 39K
R747	ERJ6GEYJ473V	1/10W 47K
R760	ERJ6GEYJ561V	1/10W 560
R761	ERJ6GEYJ561V	1/10W 560
R762	ERJ6GEYJ561V	1/10W 560
		JUMPER(S)
RJ702	ERJ6GEY0R00V	CHIP JUMPER
RJ704	ERJ6GEY0R00V	CHIP JUMPER
RJ705	ERJ6GEY0R00V	CHIP JUMPER
RJ706	ERJ6GEY0R00V	CHIP JUMPER
RJ707	ERJ6GEY0R00V	CHIP JUMPER
RJ708	ERJ6GEY0R00V	CHIP JUMPER
RJ709	ERJ6GEY0R00V	CHIP JUMPER
RJ710	ERJ6GEY0R00V	CHIP JUMPER
		CAPACITOR(S)
C701	ECEA0JKS220I	6.3V 22U
C702	ECEA0JKS470I	6.3V 47U
C703	ECEA0JKS101I	6.3V 100U
C709	ECUV1C224KBM	16V 0.22U
C710	ECUV1C104MBM	16V 0.1U
C711	ECUV1E103MBN	25V 0.01U
C713	ECEA1CSN4R7I	16V 4.7U
C714	ECEA1HKS010I	50V 1U
C715	ECUV1H472KBN	50V 4700P
C716	ECUV1C473KBN	16V 0.047U
C717	ECUV1H681KBN	50V 680P
C718	ECEA1AKS101I	10V 100U
C719	ECUV1E103MBN	25V 0.01U
C720	ECUV1E153MBN	25V 0.015U
C721	ECUV1E103MBN	25V 0.01U

Ref. No.	Part No.	Values & Remarks
C722	ECEA0JKS470I	6.3V 47U
C723	ECUV1C104MBM	16V 0.1U
C724	ECUV1E333MBN	25V 0.033U
C725	ECUV1E103MBN	25V 0.01U
C726	ECUV1H471KBN	50V 470P
C727	ECEA0JKS470I	6.3V 47U
C728	ECUV1C104MBM	16V 0.1U
C729	ECUV1C473MBN	16V 0.047U
C730	ECUV1C224KBM	16V 0.22U
C731	ECEA0JKS331I	6.3V 330U
C732	ECUV1H102MBN	50V 1000P
C733	ECEA0JKS101I	6.3V 100U
C734	ECUV1E223MBN	25V 0.022U
C735	ECUV1C224KBM	16V 0.22U
C737	ECUV1C224KBM	16V 0.22U
C738	ECEA0JKS101I	6.3V 100U
C739	ECUV1E103MBN	25V 0.01U
C740	ECUV1H472MBN	50V 4700P
C741	ECUV1C224KBM	16V 0.22U
C748	ECEA1HKS010I	50V 1U
C749	ECUV1E103MBN	25V 0.01U
C750	ECUV1H050DCN	50V 5P
C751	ECUV1C224KBM	16V 0.22U
C752	ECUV1C104MBM	16V 0.1U
C755	ECUV1C104MBM	16V 0.1U
C758	ECUV1C224KBM	16V 0.22U

■PACKING



(P2 Ⓐ Ⓑ Ⓒ Ⓓ : part No. RPN0413-1)